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TREATMENT OF BURNS RESULTING FROM DISASTER

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This article deals with the manner in which the Newport Naval Hospital's disaster plan was implemented and partially modified to cope with mass casualty handling and treatment.

BENNINGTON DISASTER

At approximately 6:30 on the morning of May 26, 1954, a serious explosion and fire occurred aboard the aircraft carrier U. S. S. Bennington (CVA-20), while routine air operations were being conducted off the coast of southern New England. Two hundred three officers and men sustained injuries, and 91 of them were either killed immediately or died shortly thereafter before medical assistance could reach them. Eighty-two of the more seriously injured patients were transferred to the U. S. Naval Hospital, Newport, R. I., for treatment. One of the ship's medical officers was killed in the explosion. The two medical officers who survived administered morphine and intravenous therapy to every patient prior to transfer. By their effort, initial treatment was promptly instituted.

Arrangements were made for helicopter evacuation of the casualties, and helicopters shuttled back and forth between the ship and the hospital while the ship proceeded to its berth at the U. S. Naval Air Station, Quonset Point, R. I. The first patients arrived at the hospital approximately 4½ hours after the explosion. In the subsequent three hours, 64 patients were received by the helicopters. The remainder of the patients were transferred by boat and were received approximately 12 hours after the explosion. The use of helicopters materially expedited the evacuation of casualties from the ship, and thereby definitive treatment was instituted much sooner than would have otherwise been possible. This permitted fairly prompt treatment of shock and obviously saved several lives. Thus, the usefulness of the helicopter in evacuating patients from either military or civilian disasters should always be considered.

Of the 82 patients admitted to the U. S. Naval Hospital at Newport, 8 had injuries without burns. The remaining 74 patients all had burns varying from 2 to 100% of their body surface (see table). Several of the patients had additional injuries such as fractures, and many had some degree of pulmonary blast and burn injury. In all, 12 died. One patient with burns of only 10% of his body surface died of petechial hemorrhages and edema of the brain attributed to anoxia during a period of asphyxia that required resuscitation while he was still aboard the ship. Another patient with 44% of his body surface burned was in such profound shock that his blood pressure could not be restored by venous transfusions. Intra-arterial transfusions were effective for a time, but he ultimately died approximately 60 hours after injury. Eight of the patients had extensive tracheal and pulmonary burns with associated evidence of pulmonary blast injury. One patient had a severely contused and lacerated left lung from a crushed left side of the chest that restricted aeration even though the chest wall was stabilized and the lung was reexpanded by drainage of the pneumohemothorax. The patient with burns of his entire body had second and third degree burns of 99% of his body surface, 50% of which were third degree. In spite of such severe burns, he survived for a period of 15 days but finally died with multiple pulmonary infarcts and anuria from severe kidney damage.

HOSPITAL PREPARATION

The hospital was informed of the disaster about three hours prior to the receipt of the first patients. During this interval, a meeting of the staff was held and individual responsibilities were assigned. Plans were made to implement the hospital's disaster plan with such modifications necessary to cope with the problem at hand. In addition, a standardized program of treatment was presented in order to obtain maximum efficiency and uniformity in handling the casualties. By this means there was a minimum of confusion when casualties began to arrive. Staff meetings were continued thereafter at 8 a.m. each morning, at which time the procedure for the day was outlined and any problem that arose on the preceding day was discussed. Therefore, diverging ideas were avoided and uniformity in the treatment was maintained.

This is a combination and revision of two papers by Drs. Enyart and Miller read before the Section on Military Medicine at the 103rd Annual Meeting of the American Medical Association, San Francisco, June 23 and 24, 1954.

The opinions and assertions contained in this article are the private ones of the writers and are not to be construed as official or reflecting the views of the Navy Department or the naval service at large.

Prior to the arrival of the first patients, four wards in the main hospital building nearest to the central supply and operating rooms were evacuated of their patients and prepared for the receipt of casualties. Beds were made with freshly laundered or sterilized sheets. Initial supplies were obtained from the medical storeroom, and the blood bank started drawing additional blood. A temporary triage station was set up at the main hospital entrance. This was more accessible to the ambulances and accelerated the admission of patients. Upon arrival, the casualties were quickly screened by two medical officers, were immediately taken to the appropriate wards depending upon degree of injury, and treatment was promptly instituted. No admission data were obtained at this time, and only a numerical count was maintained at the triage station. After definitive treatment was instituted and in progress, clerical personnel obtained from the patients' bedside the necessary data for the routine hospital admission records. By this means, the admission of the casualties ran smoothly and patients were admitted as fast as ambulances could be unloaded.

U. S. S. Bennington Burn Casualties

Body Burn, %	No. of Deaths	Patients Surviving	Total
0-10	..	10	10
10-20	1	23	24
20-30	..	9	9
30-40	..	5	5
40-50	1	4	5
50-60	..	4	4
60-70	2	7	9
70-80	2	..	2
80-90	5	..	5
90-100	1	..	1

BLOOD AND ELECTROLYTE REPLACEMENT

The treatment of the burned patients was standardized to include the administration of blood and electrolyte to combat shock, exposure treatment of burn surfaces, administration of antibiotics in high dosage, tracheotomy for laryngeal burns, Levine tube suction for gastric dilatation, early skin grafting, and maintenance on a high caloric, high protein, high vitamin diet. A rapid distributional shift of body fluid and electrolyte occurs when a considerable body area is burned. Normally, the total circulating blood volume accounts for approximately 8% of the body weight and the extracellular fluid accounts for an additional 12%. After a burn there is a rapid distributional shift of fluid into the tissue beneath the burn, which becomes evident as clinical edema, and, in addition, there is considerable loss of exudate from the burn surface. In the untreated burn this fluid is obtained from the extracellular space elsewhere in the body and from the circulating blood. The loss of fluid from the blood causes hemoconcentration with rising hematocrits and a reduction in total circulating blood volume. Clinical shock results, and blood and plasma expander solutions are needed to restore blood volume to normal.

The osmotic concentration of electrolyte is essentially the same in the burn edema and exudate as in normal extracellular fluid and blood.[1] Thus, if solutions of glucose in water are given, there is dilution of electrolyte and water intoxication occurs. Isotonic electrolytic solutions are therefore needed in an amount exactly equal to the amount of fluid lost in the burn edema and as exudate from the burn surface. Isotonic sodium chloride solution and glucose in such solution is effective for this purpose.

The shock that developed from these physiological changes was treated by the administration of blood and electrolyte in accordance with our modification of the Evans formula.[2] During the first 24 hour period an amount of isotonic sodium chloride solution was administered that was equal to the body weight in kilograms times the percent of the body burn, using 50% as the maximum figure for this calculation. For example, when a man weighing 150 lb., or 70 kg., had a 40% burn, he received 70 times 40, or 2,800 cc. of isotonic sodium chloride solution. If he had a 70% burn, he received 70 times 50, or 3,500 cc. An equivalent amount of plasma expander was also administered intravenously during the first 24 hours, with the intention that half of it would be blood and the other half dextran or serum albumin. Actually, only about a third of the plasma expander given was blood, but this seemed to be sufficient. No plasma was used, as none was available that was free of the homologous serum jaundice hazard. Administration of isotonic sodium chloride solution, blood, dextran, and serum albumin was continued during the second 24 hour period, but in half the amounts of the preceding day. In addition, half normal saline solution or a half normal solution of sodium bicarbonate, sodium citrate, and saline solution was also given orally to those patients who would tolerate an oral intake. At the end of the first 48 hours all sodium chloride administration was discontinued and glucose in water solutions were administered instead in amounts sufficient to maintain hydration until the period of diuresis was completed.

All patients with burns of more than 25% of their total body surface were placed on a regimen of bladder drainage with indwelling Foley catheters and the intravenous therapy was administered fast enough to keep the urinary output at approximately 50 cc. per hour. Thus, a glance at the urine bottle accurately reflected the patient's response to treatment.

In applying the electrolytic replacement formula, the body surface areas were calculated by the rule of "9." According to this rule, the surface area of the head and neck is 9% of the total body surface, the area of each upper extremity 9%, each leg 18%, and the front of the trunk 18% and the back of the trunk 18%. This totals only 99%, and the remaining 1% is accounted for by the genitals and perineum. This is a simple formula easily remembered and reasonably accurate. However, for the purpose of statistical analysis of the cases, the somewhat more accurate but also more complicated formula of Lund and Browder [3] was used.

During the initial sodium chloride solution replacement there was a slight rise in serum sodium levels. In the 11 patients who survived 50 to 75% body burns, the serum sodium level reached an average of 150 mEq. After

1. Moore, F. D.; Langohr, J. L.; Ingebretsen, M., and Cope, O.: The Role of the Exudate Losses in the Protein and Electrolyte Imbalance of Burned Patients, Ann. Surg. **132**: 1-19, 1950.

2. Evans, E. I.: The Early Management of the Severely Burned Patient (John Chalmers Da Costa Oration), Surg., Gynec. & Obst. **94**: 273-282, 1952.

3. Lund, C. C., and Browder, N. C.: The Estimation of Areas of Burns, Surg. Gynec. & Obst. **79**: 352-358, 1944.

discontinuing sodium chloride solution this returned to normal. When a small amount of sodium chloride solution was again administered to the same patients on the sixth day in an average amount of 590 cc. of isotonic solution per patient, the serum sodium levels abruptly climbed to an average of 157 mEq. These again returned to normal when solutions of glucose in water were substituted. While the sodium level was climbing, serum potassium levels were falling, reaching a low of 2.8 mEq. on the fifth day. Potassium replacement, which had been started in small dosage on the third day after burns had been incurred, was therefore promptly increased to approximately 300 mEq. per day, of which 80 mEq. was given intravenously. In spite of this high dosage, the serum potassium levels rose slowly. At the same time, urinary sodium and potassium studies revealed that the kidneys were withholding body sodium and concomitantly diuresing potassium almost as rapidly as it was being administered. Blood and urinary 17-hydroxycorticosteroid studies revealed high adrenal cortical activity, and this situation is undoubtedly explained on that basis.

EXPOSURE METHOD OF TREATMENT

The burn surfaces were treated by the exposure method, which is an excellent practical method of handling large numbers of burn casualties. On arrival in the wards patients were stripped of their clothing or bandages while they were still on stretchers and then placed in bed. No attempt was made to cleanse or débride the burn surfaces until the patients' condition became stabilized and their output of urine was satisfactory. In most instances cleansing was deferred for 12 hours, and some of the patients had no débridement for 24 to 36 hours. When débridement was done, it consisted of general cleansing of the burn surfaces with hexachlorophene (pHisoHex) and irrigation with isotonic sodium chloride solution. No rough handling of the tissues was permitted, and no extensive débridement of the skin was performed. Initially, blisters were left intact and only loose edges of skin were removed. In no instance was an anesthetic administered for this purpose other than meperidine (Demerol), morphine or alphaprodine (Nisentil).

Ideally, the patient should be left completely exposed, but in spite of increased temperature on the wards, most of the patients felt cold unless protected from drafts. Frames were made out of ⅜ in. metal rods that were inserted into the corner posts at the foot and head of the beds, and sheets and blankets were draped over these to keep the patients warm. In addition, lamps were used judiciously for warmth, as well as to speed up the drying out process. Careful nursing, however, is necessary when lamps are used to insure no further injury is inflicted. By exposure to the open air the burn surfaces gradually became dry, and a protective coagulum formed by the end of 48 to 72 hours. This coagulum served as nature's own dressing and protected the burns while healing progressed.

The exposure treatment has often been criticized as not being applicable in circumferential burns. Most of these burns were at least in part circumferential, but by turning the patients at approximately six hour intervals, a suitable coagulum formed on the entire body circumference and remained dry in most instances as long as the turning continued. Stryker frames were used for the critically burned patients, and the turning was thus accomplished with minimal discomfort.

Control and Elimination of Infection.—The exposure treatment materially reduces the amount of work involved in the treatment of burns, but it must not, and cannot, imply neglect. The burn surfaces must be inspected daily, and care must be taken to locate and débride any areas where infection occurs. Many of the burns healed spontaneously without any evidence of infection occurring. The coagulum gradually peeled from superficial split-thickness burns on about the 10th to the 14th day, leaving a nicely healed surface beneath. Deeper split-thickness burns, in which only islands of epithelium remained about hair follicles and sebaceous glands, healed more slowly and required approximately three weeks. In these, the coagulum gradually became quite thick but finally peeled, leaving a very thin epithelialized surface beneath. Some deep split-thickness burns became infected, and in these healing was more prolonged. The coagulum tends to crack in the vicinity of joints, and infection may occur. Adequate drainage must be obtained in these areas by surgically débriding the coagulum. As long as adequate drainage was established, temperature elevations were moderate. Whenever a high temperature elevation occurred, the patient was carefully examined for concealed areas of infection. If none was apparent, blisters that were initially left intact were completely débrided and coagulums were incised to determine hidden infection.

Fig. 1.—Leg burns on ninth day after burns were incurred in patient who had secondary débridement of the leg on the sixth day because of infection.

The patient shown in figure 1 had a temperature of 104.6 F that occurred on the sixth day, but no obvious source of infection was seen. The coagulum over the leg was incised, and pus was found to be present under most of it. The coagulum was surgically débrided, the leg cleansed and again left exposed. His temperature promptly fell to nearly normal, and a new coagulum formed in approximately 48 hours. This is shown as it appeared on the ninth day after burns were incurred. Due to prompt drainage of the infection, the entire leg went on to heal spontaneously in approximately three weeks, and no grafting was necessary. Although the new skin was thin, there was very little scarring and no scar retraction.

The control or elimination of infection appears to be the chief advantage of the exposure treatment. During the grafting stage of third degree areas, surfaces that had been healing rapidly regressed when infection occurred. Also, donor sites that had been cut very superficially with the Brown electrodermatome set at 10/1000 of an inch were slow in healing whenever infection appeared. Thus, it appears that infection not only delays healing but can convert deep split-thickness burn areas that should heal spontaneously into third degree areas that require grafting. The coagulum that forms in the exposure treatment seems to be impervious to infection, but, when infection does occur, it can be easily and quickly controlled by drainage. In contrast, dressings too often seal infection in the wound.

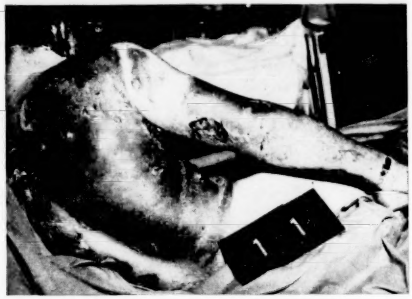

Fig. 2.—Typical clean, dry coagulum that formed on a patient with circumferential burns.

Eschars formed over third degree burned areas more rapidly than the coagulum over split-thickness areas and remained intact for about 14 days. Then the eschars gradually began to separate, leaving moist wounds, and daily dressings were then instituted. Once the separation begins, the more rapidly the eschars are removed, the sooner lay-on grafting can be instituted. Thus, the eschars should be either surgically or enzymatically débrided. Some patients were taken to the operating room for complete immediate débridement under anesthesia, but in most patients débridement was gradually on the wards as the eschar separated, using only alphaprodine analgesia. Proteolytic enzymes were used to some extent with fair results.

Figure 2 shows the typical clean, dry coagulum that formed on the back of a patient with burns of the head, thorax, and extremities. The entire back healed spontaneously without any evidence of infection. The area just below the shoulder bordered on third degree but eventually healed without grafting. Total blood volumes were determined with serum albumin labeled with radioactive iodine and red blood cells labeled with radioactive chromium. The value of these determinations was evident. On the 15th day after burns were incurred these studies revealed a total blood volume deficit of 1,700 cc., when the hematocrit was 52%. The total blood volume studies were repeated as additional blood was administered and confirmed the deficit, indicating that the studies were accurate. Extracellular space studies using radioactive sulfur also revealed that the extracellular space was expanded by 3 liters on the fifth day and gradually returned to normal as diuresis of burn edema progressed.

Thick coagulum formed on the ninth day on the arms and legs of a patient with very deep partial-thickness burns. The areas healed without infection, and the coagulum peeled spontaneously by the 23rd day after burns were incurred, leaving a thin, tender, epithelialized surface. Many of the burns involving the trunk were circumferential. Nevertheless, all of them were treated by the exposure method, and protective coagulums formed and remained intact as long as the patients were turned at frequent intervals. Usually turning at four to six hour intervals was sufficient.

Figure 3 shows the front and back of a typical patient as he appeared on the ninth day. The coagulum on his trunk was already beginning to peel at this time, and healing was spontaneous except for areas on the inner aspect of the right upper arm and both elbows that required skin grafting. At the time of the photograph he was still on a Stryker frame, which facilitated the turning process.

Protective clothing will prevent most flash burns. As shown in figure 4, photographed on the sixth day, the patient's shorts protected most of his buttocks. His legs, which were exposed, sustained deep burns extending through the pigment layer, making it impossible to tell from the burn surfaces whether he was Caucasian or Negro. Nevertheless, healing was spontaneous without infection except for an area on the lateral side of his right ankle, which required grafting.

When pressure bandages have been previously applied, the exposure treatment can still be used. A patient had gauze dressings impregnated with nitrofurazone (Furacin) applied prior to his admission. When he began to have a septic fever on the fourth day, the dressings were removed, with improvement in the temperature curve, and the exposure treatment was used thereafter. A thin, dry coagulum formed approximately 72 hours later; it was impossible to distinguish between second and third degree areas. Eventually this patient required considerable grafting on the legs, shoulders, forearms, and dorsum of the hands, totaling approximately 6% of his total body surface.

Fig. 3.—*A*, front view of patient with circumferential burns on ninth day after burns were incurred. *B*, back view of same patient.

Use of Medicaments, Tube Suction, and Tube Feeding.—Antibiotics were routinely used in all cases. Initially, penicillin and streptomycin were used as a prophylactic

measure and therapy was continued for five to seven days. Thereafter, antibiotic therapy was based on cultural sensitivity, using surface or blood cultures. When no effect was obtained from a new antibiotic in 48 hours in patients with septicemia, another was substituted. Chloramphenicol (Chloromycetin), oxytetracycline (Terramycin), tetracycline, chlortetracycline (Aureomycin), erythromycin, and sulfisoxazole (Gantrisin) were used at various times. Tetracycline and chloramphenicol were the most commonly effective antibiotics.

Fig. 4.—Severe burns of legs in patient whose buttocks were protected by shorts.

Whenever a patient's face is burned there is apt to be an associated burn of the larynx and respiratory passageways. Vigilance must be maintained for early respiratory distress and tracheotomy instituted at the first sign of difficulty. In these patients respiratory irritation from either flame or smoke was very common, but, in most instances, aerosol therapy with a mixture of 2 cc. of Alevaire (a mixture of 0.125% Superinone [oxyethylated tertiary octylphenol-formaldehyde polymer], 5% glycerin, 2% sodium bicarbonate, and water); 0.2 cc. of isopropylarterenol (Isuprel), 1:100 solution; and 100,000 units of penicillin was generally effective. Tracheotomies were necessary in eight patients. Seven of these eventually succumbed to their pulmonary and cutaneous burns; however, one of these patients with second and third degree burns of 68% of his body surface survived. He required skin grafting on approximately 30% of his body surface.

Gastric dilatation occurred quite commonly in the seriously burned patients during the first 48 hours, and Levine suction was frequently necessary. Some patients required intermittent Levine suction for as long as two weeks. In such patients tube feeding and tube suction were alternately used every two hours in an effort to maintain as adequate nutrition as possible. Gastric dilatation was sufficiently common in the severely burned patients that routine gastric suction for the first 48 hours appears advisable in all patients with burns of more than 50% of their body surfaces.

Maintaining nutrition throughout the convalescence is important, especially so during the period of grafting. Daily protein and caloric intakes were calculated and recorded for the patients, and every effort was made to obtain an adequate oral intake. Meritine protein supplement was used freely, and those patients who would not voluntarily take an adequate amount of food were tube fed.

SKIN GRAFTING

It is generally agreed that skin grafting of third degree areas should be instituted early. There is wide disagreement, however, as to what is considered early. Following the recent trend of early excision grafting, four patients were selected for excision grafting on the fourth day after burns were incurred. Two of the patients had excision grafting, and fortunately the grafts took well. In reviewing the microscopic sections of the tissue removed, it appears that healing may very well have occurred spontaneously from scattered islands of epithelium. The other two patients appeared to have islands of epithelium remaining in the burned area when the eschar was peeled; therefore, no grafting was done, and healing eventually occurred spontaneously. Thus, it appears that the usual criteria of distinguishing third degree areas are not reliable and that grafting usually should not be instituted prior to the 10th to 14th day. Grafting that is done prior to that time will generally remove considerable viable epithelium. In addition, early extensive grafting in the badly burned patient may jeopardize his survival.

Further excision grafting was used, but most of the grafting was of the lay-on type after preparation of donor recipient sites. Strips or even sheets of skin were used over joint surfaces and small "postage stamp" grafts over other surfaces. This type of grafting appeared to give the same results as excision grafting and conserved donor skin.

Fig. 5.—Fine nodularity developing in the coagulum within the 6th to 12th days, indicating the burn surface beneath would heal spontaneously.

One reliable sign for distinguishing deep split-thickness burn areas that will heal spontaneously was observed. About the 6th to the 12th day the coagulum covering split-thickness burns tends to become thick and finally nodular as shown in figure 5. As this coagulum peeled

islands of epithelium were evident that corresponded to the nodularity of the coagulum, and these reepithelialized the surrounding surface.

CONCLUSIONS

The exposure treatment is an excellent method of treating burns and is especially suited for the handling of mass burn casualties. It is effective in circumferential burns if the patients are turned at regular intervals. It reduces the amount of skin grafting that proves necessary and shortens the recovery. The modified Evans formula used in the treatment of shock is a satisfactory guide for blood and electrolyte replacement. About one-third of the plasma expander fraction should be blood. Dextran and serum albumin are effective for the remainder. The speed of administration of blood and electrolyte is best gauged by observing the urinary output and maintaining a urinary excretion of 50 cc. per hour.

CAUSES OF BURNS IN CHILDREN

A STUDY OF FULL-THICKNESS BURNS IN FOUR HUNDRED FIFTY-SEVEN PATIENTS FROM THE NORTH CAROLINA ORTHOPEDIC HOSPITAL, GASTONIA

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Although the exact figures are not available, the incidence of burning accidents in the United States is extremely high. Only deaths due to burns are reported, and for this reason morbidity statistics are not available. Woodhall, in data derived from the North Carolina newspapers over a 12 month period from July 1, 1949, through June 30, 1950, found that burns ranked second with drownings in the list of causes of death in children.[1] It has been estimated that about 40,000 to 70,000 burns occur per year. Due to the vast improvements in the treatment of initial burn shock, about 50 to 60% of these burned children are surviving. Thus, those persons who formerly would have died as the result of a severe burn now present an ever-increasing problem of care, handicap, and disability as the result of their survival.

The literature has been replete with papers on the treatment of burns. It is usually stated that the proper treatment consists of first treating the initial shock, and second, early skin grafting of all full-thickness losses of skin coupled with the prevention of contractures. Little has been written concerning the causes of burns and their prevention. Prevention would seem to be the next logical goal since, even though a patient survives a 40% full-thickness burn, a long period of pain and hospitalization follows for the necessary skin grafting, the result of which is satisfactory but at best only a fair substitute for normal skin. In addition, some of these patients have a lifetime disability. All but two of these studies concerning prevention of burns have been reported in the British literature. Colebrook, a British physician, spoke before the New York Academy of Medicine, outlining his ideas for the prevention of burns.[2] These studies pointed out that 70% of the burns occurred in the home or immediate surroundings, and that the majority occurred in children and in elderly persons. In Colebrook's series of 1,000 cases, 53% of those burned were under the age of 5 years; an even greater incidence of burned children occurred in Wilkinson's study of 366 cases, 80% of whom were under 5 years of age.[3]

GENERAL STATISTICS

The purpose of this study is to analyze the causes of full-thickness burns in children seen at the North Carolina Orthopedic Hospital, Gastonia, from 1921 to 1953. A total of 457 children, ranging in age from 6 months to 16 years of age, were seen during this period. Of these 457, 414 were admitted to the hospital for treatment of either contractures due to burns or from initial skin grafting. The remaining 43 patients who were not hospitalized either had scars that were not disabling, were sent to a university hospital for facial plastic work, or were lost from the clinic. The total suffering of this group of patients is, of course, immeasurable. The total hospital days, however, is a staggering 90,992 days. Even with the rather low per diem cost of hospitalization at the North Carolina Orthopedic Hospital ($6 average per day, 1953 estimate), this would represent a total expenditure of $545,952.

YEARLY INCIDENCE

The number of patients seen each year has not varied a great deal since 1930. This is probably attributable to two factors: (1) the treatment of only late contractures prior to 1930, and (2) increasing numbers of acutely burned patients admitted to the hospital for early skin grafting since 1930 in order to obviate the treatment of late contractures (fig. 1).

CAUSATIVE AGENTS

Of the 457 patients seen a history of the cause of the burning was recorded in 344. The four main causes were ignition of clothing; direct contact with flame, hot ashes, and hot stoves; gasoline or kerosene; and hot liquids (water, grease). Miscellaneous causes accounted for the remaining 24 patients, or 7% (fig. 2). Each of these causes has been analyzed further.

Ignition of Clothing.—The history of "clothing caught fire" was given in 159 children. The sources of the flame were recorded in 89 of this group and are illustrated in the table. In this group the racial distribution was Caucasian 98, Negroid 58, and Indian 3. As might be expected,

From the Department of Surgery, Orthopedic Division, Duke University School of Medicine. Fellow, National Foundation for Infantile Paralysis.

1. Woodhall, B.: The Situational Pattern in Childhood Injury: Data Derived from North Carolina Newspapers, North Carolina M. J. **12**: 89-93 (March) 1951.

2. Colebrook, L.: The Prevention of Burning Accidents in England and America, Bull. New York Acad. Med. **27**: 425-438 (July) 1951.

3. Wilkinson, A. W.: Burns and Scalds in Children: Investigation of Their Cause and First-Aid Treatment, Brit. M. J. **1**: 37-40 (Jan. 8) 1944.

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due to the greater chance of dresses igniting, 97 were girls and 62 were boys. The age distribution is consistent with other authors on this subject, inasmuch as 60.4% were 3 to 6 inclusive. It was interesting but tragic to record that 96 children of this group had full-thickness burns of over 20% of the body surface. Only five deaths were encountered in the entire study, and three of these were in children with the history "clothing caught fire."

Causes of Burns in Children

	No. of Patients
Ignition of Clothing, Source of	
Open fireplace	32
Brush or trash fire	18
Washpot	6
Playing with matches	18
Wood or coal heater	10
Gas stove	1
Wood stove	3
Kerosene stove	5
No history of source	66
Total	159
Direct Contact with Flame, Hot Ashes, and Hot Stoves	
Fell into open fireplace	51
Epilepsy, fell into fireplace	3
Cerebral palsy, fell into fireplace	1
Burned by broom from fireplace	1
Walked in grass or trash fire	2
Fell on hot stove	10
Stepped in burning stump hole	1
Fell against coal or wood heater	5
Fell in hot ashes	8
Total	82
Gasoline and Kerosene	
Gasoline explosion (no other history)	20
Starting fire with gasoline	3
Drawing gasoline from automobile	6
Lamp exploded	1
Gasoline sprayed on clothing	3
Kerosene explosion (no other history)	6
Kerosene stove explosion	5
Making fire with kerosene	4
Kerosene spilled on clothing	3
Total	51
Hot Liquids	
Scald (no other history)	5
Kettle of boiling water pulled down	9
Fell into tub of hot water	5
Pot of hot coffee pulled down	2
Sat in tub of hot water	1
Fell into tub of boiling soap	1
Pulled down pan of hot grease	4
Pulled down pan of hot grits	1
Total	28
Miscellaneous Causes of Burns	
Hand towel on stove caught fire	1
Bandage on hand caught fire	1
Blanket caught fire	2
Baby crib caught fire (children threw lighted matches in crib)	1
Scout tent burned	1
Newspaper set fire by another child	1
House caught fire	2
Child sat before fire and fire "popped out"	3
Automobile accident, car turned over on legs and gasoline caught fire	1
Plastic glasses caught fire (from stove)	1
Playing with electric wire	2
Playing with electric switch	1
Tied rock to a wire and threw this over high-tension line	1
Hand caught in mangle	2
Flatiron fell on hand	2
Lye poured on head	1
Chlorophenothane (DDT) and kerosene contacted leg	1
Total	24

The total number of hospital days by this one group was 31,466. The average number of hospital days per patient was 224.75. From 1921 to 1945 the average number of hospital days was 243.4. From 1945 to 1953, during which time antibiotics, whole blood, and split-thickness skin grafting were more extensively used, the average patient days was cut to only 212.2. Even though the surgical treatment has improved, no dramatic reduction of the hospital days has occurred due to the fact that the patients with more extensive burns are surviving (fig. 3). Substantiating the fact that today those with more severe burns survive are the statistics of the number of patients who were admitted with over 35% body burn. From 1921 to 1945, 8 patients with 35% burns were admitted; the number of over 35% burns admitted from 1945 to 1953 was 23.

Direct Contact with Flame, Hot Ashes, and Hot Stoves.—Eighty-two children had histories of direct contact with a flame, hot ashes, or a hot stove. Three of

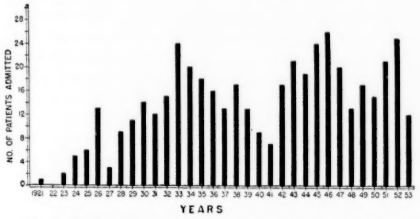

Fig. 1.—Yearly incidence of full-thickness burns seen at North Carolina Orthopedic Hospital, Gastonia.

these children had epileptic convulsions causing them to fall in the fire. One child, with cerebral palsy with spastic paraplegia, fell into a fire. The causes of the burns are enumerated in the table. The racial distribution was Caucasian 64, Negroid 17, and Indian 1. The number of males and females was rather equally divided: 44 males and 38 females. The greatest number of children was in the toddler age of 1 to 2 years. Sixty-six (80.5%) were 3 years or younger. These burns involved mainly the hands or the feet. Fifty had burned hands, and 14 had burned feet. Seventy-three patients of this group were hospitalized, the total number of hospital days being 18,241. The average number of days, 249.9, was somewhat higher than for the preceding group of patients, probably due to the fact that the reconstructive surgery of the burned hand or foot is much more difficult and time consuming than covering extensive areas of the body with skin grafts or releasing contractures across major joints.

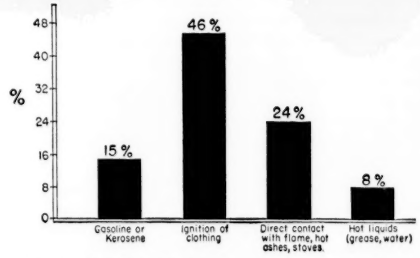

Fig. 2.—Four main causes of burns.

Gasoline and Kerosene.—Lack of caution in handling gasoline or kerosene accounted for 51 cases of burns. Thirty-three cases were due to gasoline and 18 to kerosene. The historical data of these accidents are recorded in the table. The racial distribution was as follows: Caucasian 30, Negroid 19, and Indian 2. In contrast to the first category of causes, the majority of this group was

boys. There were 39 males and 12 females. The age distribution was significant inasmuch as 43% of the patients were in early adolescence. These patients usually had extensive body surface burns. The trunk and lower extremities were most frequently involved. Eighteen patients had over 30% body surface burns. One of these patients died as a result of a 60% body surface burn. Forty-nine of these children were hospitalized. The total number of hospital days was 10,860. The average number of hospital days per patient, 221.6, was about the same as the first group in whom the clothing caught fire.

Hot Liquids.—As a group, children scalded by hot liquids was the smallest in number. Only 28 children had this history. The historical data are tabulated in the table. The racial distribution was as follows: Caucasian 23 and Negroid 5. The number of boys and girls was equally divided—14 males and 14 females. The extent

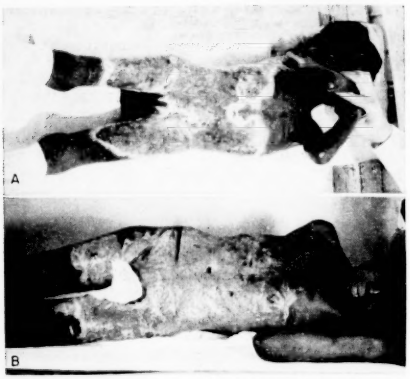

Fig. 3.—*A*, a child, who was admitted to the hospital in 1935 and subsequently died, with severe body surface burns. *B*, a child with similar involvement in 1953 who survived with no undue complications.

of the burns varied from the scalp to the feet; however, none of these was severe in its extent. Twenty-three children were hospitalized; the total number of hospital days was 4,219; the average number of days per patient, 183.4, was considerably less than the preceding group due to the less severe nature of the burns. As might be expected, the inquisitive-aged child who is prone to pull down pots of hot water predominated; 42.8% were between the ages of 2 and 3 years.

Miscellaneous Causes.—Twenty-four children were burned due to a variety of causes. The histories obtained are tabulated in order to point out the rarity of some of the supposedly common causes, namely, electrical appliances and wiring (see table). Apparently, the public has been sufficiently warned about the dangers of electricity so that caution is exercised in handling electrical equipment. Furthermore, the rarity of electrical burns is a tribute to the industry that has made these appliances with a concern for public safety. The race, age, and extent distribution of this group are not tabulated because of the great variance of causes. It should be noted that some of the accidents are of a freak type. The total number of hospital days of this group was 2,573; the average number of days per patient was 135.4; 19 of the 24 children were hospitalized.

4. Colebrook, L., and Colebrook, V.: The Prevention of Burns and Scalds: Review of 1,000 Cases, Lancet **2**: 181-188 (July 30) 1949.

5. Wright, M. T.: Relation of Burning Injuries to Social Circumstances, Lancet **1**: 155 (Feb. 3) 1945.

COMMENT

It is interesting to compare the foregoing statistics with those of the British authors. In Colebrook's series, over 50% of the burns were due to ignition of the clothing by a heating appliance or source of heat.[4] This same cause was responsible for 36 of the 41 deaths that occurred in the home. Colebrook also pointed out that 67% of the scalds occurred in children under 5, and the scalding was caused by pulling down a pot or cup from the stove or falling into a tub of hot liquid on the floor. Wright [5] and Wilkinson [3] attribute scalding as the cause of the majority of burns; however, the most serious burns in their series of patients were encountered in those cases caused by ignition of the clothing. Of the 366 burned children in Wright's group, 77.9% were due to hot liquids and 17.4% to the ignition of clothing. Of the 30 children whose clothing caught fire, 6 died. In Woodhall's analysis of 59 deaths due to burns, 7 deaths were due to ignition of the clothing and 6 deaths to gasoline or kerosene explosions.[1]

In the group of patients from the North Carolina Orthopedic Hospital, 46% of the burns were due to ignition of the clothing. The source of the flame in the majority of instances was the open fireplace. It is interesting to note that in England a law was enacted in 1908 (Children's Act) requiring a fireguard in front of a fireplace in any dwelling where there was a child under the age of 7 years in the home. Apparently, enforcement of the act has not been entirely successful.[3]

PREVENTION OF BURNS

Great strides have been made in the construction of buildings and homes to render them fireproof. Similar advances have been made in the construction of electrical equipment so that it is a negligible factor in the cause of burns. With regard to prevention of burns, it can be surmised that public education and burn consciousness is a necessity. Fireplaces should have fireguards; handles of pots and pans on the stove should be turned in so that the young child cannot pull them down; no adult with a small child in the house should keep a pan of hot liquid on the floor. Certainly caution with gasoline and kerosene is an evident necessity. The use of these liquids to start fires should be condemned with a vigorous public education campaign.

It is true that certain social factors enter into the causes of burns. Wright in a study of 45 domestic cases concluded that overcrowding and poor housing with persons of low intelligence or careless natures were responsible factors in the production of burns.[5] However, Wilkinson in his study of 366 cases mentions that overcrowding of the home is not the only factor, since burns also occurred in children in the better homes.[3] An important social factor causing 21 deaths from burns in

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Woodhall's study was that the children were left alone in their homes. In the same study the burning of the home accounted for another 20 additional deaths.[1]

Since almost half of the burns in our children are due to ignition of the clothing, it would seem logical that a good method of fireproofing flammable textiles used for clothing manufacture be perfected. Colebrook has tested the flammability of various materials used for children's clothing and found that raised cotton is the most flammable cloth while plain cotton material runs second.[4] A special committee of the American Association of Textile Chemists and Colorists tested various fabrics and made the following conclusions. 1. Wool, silk, nylon, Vinyon, and Velon present no flammability hazard. 2. Cotton is just as flammable as regenerated-type rayon under identical construction and testing conditions. 3. With cotton having a normal moisture content of 6.5% compared with regenerated-type rayon of 11%, it is reasonable to conclude that cotton will come to a critical burning point more rapidly.[6] Because cotton remains the textile of choice in children's clothing, this is the material that should be fireproof. With regard to the newer synthetic textiles it would be desirable to label the material with a flammability quotient of some sort in order to prevent some of the serious burns that have occurred in the past when these materials were first released for general use.

The public can and should be taught to buy safety for their children. Cotton was first spun by hand; later the yarn was manufactured and the cloth was made by hand; still later the cloth was manufactured and the clothing was made at home; now it is possible to buy the clothing ready-made. Color-fast dyes have been added to the material and preshrinking of the textile is now taken for granted. With all the improvements in textiles, surely fireproofing is not an idle thought. Many fireproofing methods have been developed and tried. There is still research needed to determine a permanent fireproofing or an easily renewable method of fireproofing of textiles. Possibly the only impetus needed for the actual fireproofing of flammable textiles is public demand. In terms of hospital days and expenditure of public funds, the group in whom the ignition of clothing was the main factor accounted for 31,466 days (estimated $188,796). In terms of human misery and death no statistics can be given.

6. Little, R. W.: Flameproofing Textile Fabrics: Prepared by a Staff of Specialists Under Research Project Q. M. C. no. 27 of the National Research Council, National Academy of Sciences (American Chemical Society Monograph, no. 104), New York, Reinhold Publishing Corporation, 1948.

USE OF HYPNOSIS IN THE MANAGEMENT OF PATIENTS WITH BURNS

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and
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The definitive and supportive care of the severely burned person during the early phase of injury is difficult as a result of the severe physiological derangements that occur. The prolonged care of the burned patient through the later phases of reconstruction and rehabilitation may be even more difficult, for the injured person frequently makes poor psychological adaptations to his injury, such as becoming withdrawn and passively uncooperative or frankly negativistic toward the treatment that is intended to overcome the structural and functional effects of thermal injury. Thus, a vicious cycle becomes established in which the emotional responses to the injury and to its debilitating sequelae tend to delay recovery. In order that the management of the late phase be definitive then, the patient's hostility or other unacceptable adaptation mechanisms must be overcome and replaced by a willingness to cooperate in the treatment measures. If this aspect of the late management is unsuccessful the effects of the injury are perpetuated, or at least, recovery is slowed.

Recently our use of hypnosis was successful in effecting relief from pain in a fatally burned patient. As hypnosis was used in other burned patients, it was evident that through its use other problems in management might be resolved, such as maintenance of an adequate food intake, active exercise of painful parts, and the improvement of morale and attitude. In other words by use of hypnosis establishment of the cycle of detrimental events into which some burned victims gravitate might be prevented, or, once established, the cycle can be broken.

THE PROBLEM

An example of a vicious cycle engendered by an extensive burn is the loss of appetite that occurs when nitrogenous losses are excessive, demands for protein repair are great, and caloric needs increased. Progressive starvation retards the healing rate, epithelization ceases, skin grafts fail to take, and the open, weeping, granulating surfaces exude needed amino acids and water-soluble vitamins. The surgeon attempts to stop this unrelenting marasmus by securing epithelial cover for the wounds. Repeated skin-grafting procedures are performed with partial or no success, and each donor site that fails to heal leaves another open, infected surface to enhance the rate of loss of food stuffs. In addition, each general anesthetic that is given for the débridement and grafting operations serves to perpetuate the anorexia, often induces nausea and vomiting, and requires the withholding of food and drink for several hours prior to, and after, the operation. Starvation and often inflicted or persistent pain profoundly influence personality traits. Pain tolerance is diminished, and the petulant demands for pain relief lead to the excessive administration of narcotics. In turn, the administration of narcotics may augment anorexia, result in addiction, and reduce the desire to move injured parts, so that immobility often eventuates in contractures. The irascible, dejected patient whose reduced affect may sud-

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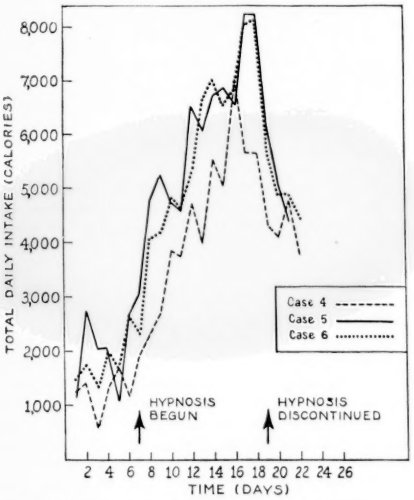
denly convert to rage or give way to tears is familiar to all who have treated severely burned people. If scolded for not eating, they may cry; if coaxed to eat, by informing them that food will help to heal their wounds, they simulate a determination to abide, but after two vigorous mouthfuls of the next meal, the disguise is usually dropped and perfunctory eating is resumed. These patients then become more morose with the realization that although they must eat they cannot. The moods of the starved and hurting man are not those that excite appetite or permit hunger, so the starvation incident to burn injury begets itself.

METHOD OF TREATMENT

The starvation cycle must be interrupted if the injury is not to be worsened or if death is to be prevented. Attempts have been made to break the chain of self-perpetuating events by the intravenous supplementary feed-



Effect of hypnotic suggestion on daily food intake of three patients with burns.

ing of amino acids; however, this procedure is frequently attended by a reduced oral intake that defeats the purpose of supplementation. Further, the amount that can be given by this means is limited, the use is poor, and for the most part the results are unsatisfactory. Plasma has been used intravenously for the same purpose but has some of the same limitations, for it is expensive, and pooled plasma carries an inordinate risk of homologous serum hepatitis. In general, the fact is accepted that if the foodstuffs can be eaten, rather than given intravenously, the urinary losses are less, and use is more complete. Consequently, methods of forced feeding have been used in which formulas of high protein content and high caloric equivalence are forced into the stomach through a nasogastric tube. This, although reported to have beneficial results in some series, is not without undesirable effects. The presence of the tube is seriously objectionable to some patients; nausea attends some feedings, diarrhea others; the feeling of fulness and abdominal distention occasionally follows this method of feeding unless the formula is given by continuous slow drip. The continuous drip feeding does not resemble the usual pattern of food ingestion and may provoke diarrhea or may induce profound disturbances of carbohydrate metabolism.[1] Animal experiments have shown that severe metabolic disturbances may attend prolonged forced feeding practices, for example, many features of the general adaptation syndrome can be produced by this means[2]; acute overfeeding may cause gastric dilatation and shock, called food shock by Selye.

An artificial appetite has been induced by the administration of corticotropin (ACTH) or cortisone, but the increased rate of nitrogen losses induced by these steroids may be of such magnitude as to maintain a negative nitrogen balance despite increments in the ingested quantity of protein. The weight gain incident to the use of these compounds is in part due to the retention of water. Other serious complications of these steroids, such as surreptitious septicemia and subsequent adrenal cortical failure during anesthesia, indicate that these compounds cannot be given without hazard. Ideally the starvation cycle can be interrupted only by creating in the patient a desire to eat; thus the eating pattern would simulate that obtaining in health, the meals anticipated and enjoyed, and optimal benefit derived from the ingested food. The motivation to eat can be provided by the suggestion during a hypnotic trance that such motivation will exist in the posthypnotic state.

RESULTS

The effects of posthypnotic suggestion on total food consumption after thermal injury are shown in the figure. The food consumption is expressed as caloric equivalents ingested per day. Three men were injured in the same boiler explosion and suffered similar burns, predominantly second degree burns of the head, neck, arms, and upper trunk. Hypnotic suggestion was started on the eighth postburn day and was continued until the 22nd day. During this period the maximum daily caloric intake for the three men was 8,200, 8,250 and 7,200. Tremendous appetites were stimulated in the men, and by suggestion it was possible to create a selective desire for certain foods. In one instance a diet containing large amounts of protein was consumed after the suggestion that the patient would crave tuna fish—a food seldom eaten by this person previous to his injury. It appears that the quantity of food ingested can be increased by posthypnotic suggestion, and, in fact, certain therapeutic diets can be prescribed and followed because the patient will tend to select from an assortment those items of food that are specifically suggested. The three men with only moderately extensive superficial burns in the acute stage were used as experimental subjects to determine whether dietary control by suggestion could be achieved; no unusual therapeutic result was expected or derived in these instances from the extraordinary caloric intake. The an-

1. Evans, E. I.: The Early Management of the Severely Burned Patient, Surg., Gynec. & Obst. **94**: 273 (March) 1952.

2. Selye, H.: The Physiology and Pathology of Exposure to Stress, Montreal, Acta, Inc., 1950.

swer to the question of whether a high protein and high caloric diet is beneficial or detrimental during the early phase after burning was not sought in these studies.

REPORT OF CASES

A definite therapeutic result was sought and obtained in the patients in the following case reports.

CASE 1.—A 24-year-old man was subjected to hypnosis after 18 months of hospitalization for a 45% body surface burn. His course in the hospital had been progressively on the downgrade and was characterized by a weight loss of 40 lb. (18.1 kg.) from 130 to 90 lb. (59 to 40.8 kg.); a loss of muscle mass; multiple unsuccessful skin-grafting attempts; chronically infected granulating wounds and infected donor skin sites; extreme weakness with refusal to attempt to leave the bed or to move his extremities; the development of decubitus ulcers and severe contractures of hands, ankles, knees, arms, and neck; the persistent complaint of pain and request for narcotics; an increasing dependence and regression to puerile behavior at times; the refusal to eat despite the attentions and compassionate pleas of resident surgeons, dietitians, nurses, and relatives, despite lengthy explanations of the importance of food to his recovery, and despite a blunt coercive approach; the failure to improve significantly while being force fed through a small polyethylene nasogastric tube; complaints of fulness and nausea with forced feedings of varied volumes and composition and finally refusing to permit the tube or feedings; the failure to obtain lasting improvement in appetite with the administration of corticotropin.

Soon after rapport was established and hypnotic and posthypnotic suggestion were started, the patient began to anticipate with eagerness each meal and within a few days was consuming about 4,200 calories each day. Six weeks after hypnosis was started, he had gained 30 lb. (13.6 kg.); he became ambulatory, exercised faithfully, gained strength and muscle mass rapidly; skin-grafting procedures were rewarded by 90% "takes"; spontaneous epithelization was rapid, and small granulating areas healed; he began doing things for himself that he had previously demanded that others do; he became cheerful, left his room frequently, and sought the company of nurses and other patients; and narcotics were discontinued, and there were no complaints of pain. Twelve weeks after beginning hypnosis he was discharged from the hospital in an ambulatory state with nearly all wounds healed. In this patient a progressively downward course was arrested and reversed after the application of hypnotic suggestion. The food intake became adequate, his attitude improved, he complained of no pain, he became ambulatory, and recovery ensued.

CASE 2.—A 33-year-old man was admitted to the hospital with a burn over 45% of the body surface. During the first 30 days he was operated on several times for removal of devitalized tissue and for skin grafting. It became necessary because of pain to administer a general anesthetic for dressing changes. He complained bitterly of pain in the donor skin and other operative sites after each procedure under general anesthesia. He refused to exercise his hands and fingers, which had been burned. With these first 30 days serving as a control period, hypnosis was used as the analgesia for subsequent dressing changes and débridement. These procedures were performed without complaint; with hypnotic sleep used as an anesthesia, a split-thickness skin graft was cut. There was no manifestation of discomfort. He was given the posthypnotic suggestion that there would be no pain in the donor area, that he would exercise his hands, and that he would be hungry. On awakening he complained of hunger, and reported an absence of sensation in the donor area. Three days later, pain and touch sensations were returned to the area by hypnotic suggestion. He exercised his hands as instructed, every 30 minutes, so faithfully that it was necessary to limit this activity, for he even exercised them during sleep. Subsequent posthypnotic suggestion had to be made so that he would exercise only during waking hours. The avoidance of repeated general anesthetics and narcotics, in addition to establishing a will to exercise his hands were the therapeutic benefits obtained from hypnotic suggestion in this patient.

CASE 3.—A 32-year-old nonwhite man was admitted to the hospital with a mixed superficial and deep dermal burn over 35% of the body surface. He was subjected to hypnosis after arriving at the hospital about four hours after the injury. No narcotics were required during the acute phase of injury or at any time during his 18 days of hospitalization. Complete alleviation of pain was obtained with hypnosis in this man throughout his hospital course.

COMMENT

Since the psychological responses to severe thermal injury and its complications profoundly influence recovery, surgeons and psychiatrists have joined efforts to render definitive treatment to burned patients,[3] but no previous attempt to use hypnosis has been reported. This study represents an exploration of the potential values of hypnosis as a part in the total management of persons badly burned. That hypnosis would be effective in preventing or relieving pain was expected since this property of the phenomenon has been adequately demonstrated.[4] Hypnosis was used successfully in this investigation as a method of anesthesia for the painful procedures of débridement, dressing changes, and skin grafting. Posthypnotic suggestion was used as an analgesic to allay postoperative pain, to permit exercise of previously painful parts, and to allow painless ambulation in a patient previously confined to bed and inactivity, in part, by pain. Muscle reeducation is possible during regression under hypnosis,[5] but it was not necessary to cause these patients to regress to the time previous to injury since they responded to suggestion without regression. Regression might be used in those patients who have been bed ridden for so long that they have forgotten how to walk; however, in such instances the inadequacy of circulatory and other physiological regulations may be more salient limiting factors than muscle reeducation. The conversion of a supine, dependent, immobile, invalid to an erect person capable of motion, even though still chronically ill, gives the patient hope that he will again become an independent person and confidence that he will eventually recover from his injury. The psychotherapeutic effects of this change in position could not likely be matched by an infinite number of interview and therapy hours by the conventional bedside approach, but as important as the erect posture is to the patient's morale, the physiological improvements are perhaps even more profound, comprehensive,[6] and essential to recovery. Deforming contractures that might otherwise ensue are prevented by exercise and ambulation.

Actually the most beneficent result of hypnosis was the quantitative increase in food ingestion that occurred in the patient in case 1. It is likely that exercise, ambulation, and improvement in demeanor would not have supervened in this patient had the food intake not increased;

3. Hamburg, D. A., and others: Clinical Importance of Emotional Problems in Care of Patients with Burns, New England J. Med. **248**: 355 (Feb.) 1953. Adler, A.: Neuropsychiatric Complications in Victims of Boston's Cocoanut Grove Disaster, J. A. M. A. **123**: 1098 (Dec. 25) 1943.

4. Butler, B.: The Use of Hypnosis in the Care of the Cancer Patient, Cancer **7**: 1 (Jan.) 1954. Sears, R. R.: An Experimental Study of Hypnotic Anesthesia, J. Exper. Psychol. **15**: 1 (Feb.) 1932. Kroger, W. S., and DeLee, S. T.: The Use of the Hypnoidal State as an Amnesic, Analgesic, and Anesthetic Agent in Obstetrics, Am. J. Obst. & Gynec. **46**: 655 (Nov.) 1943.

5. Shires, E. B.; Peters, J. J., and Krout, R. M.: Hypnosis in Neuromuscular Re-Education, U. S. Armed Forces M. J. **5**: 1519 (Oct.) 1954.

6. Leithauser, D. J.: Early Ambulation and Related Procedures in Surgical Management, Springfield, Ill., Charles C Thomas, Publisher, 1946. Whedon, G. D.: Management of the Effects of Recumbency, M. Clin. North America **35**: 545 (March) 1951.

since part of his immobility was a function of weakness due to starvation. Many of the personality changes described in injured and ill patients that are attributed to the psychic reaction to injury may, in fact, be due to inanition, for some of these personality changes are no different from those described incident to starvation.[7] The withdrawal and dejection that are common to both starved and burned persons can be corrected, in many instances, by increasing the amount of food eaten. Although the optimal caloric intakes, optimal source, kinds, and quantities of protein, and optimal diet ratio of fat, carbohydrate, and protein have not been established for various periods after the burn injury, it is agreed that a pronounced chronic starvation state is not ideal for recovery. The importance of nutrition as a determinant of the rate of wound healing and of the ability to withstand infection or recover from other physiological insults is a clinically and experimentally established fact.

The disadvantages of using hypnosis clinically are given by others as[8]: (1) some patients are not amenable to it, (2) an inordinate amount of time is required by the psychiatrist, and (3) only a highly trained person is capable of using hypnotism. Some refutation of the alleged disadvantages is appropriate because we have found that while an average of one and one-half hours may be necessary for the hypnotist to establish rapport with the patient, the succeeding trance inductions require only a few minutes. The most effective means for reinforcing the strength of the suggestion is by the use of brief hypnotic episodes repeated almost daily at first then less frequently as the hypnotist's control over the patient becomes more complete. The time that is spent by this method must be compared to the other methods of psychological management. The time investment does not seem great with this comparison. Furthermore the expert hypnotist can soon transfer his rapport to the attending surgeon after a few preliminary sessions. In fact the resident and attending surgeons and resident anesthesiologists rapidly learned the techniques of hypnotism, so that the daily reinforcements were practiced, in part, by this group of persons rather than by the person highly trained in hypnotic procedures. It is true that the method is not applicable to all patients, but the incidence of refractory persons in the category reported herein is low, for it would appear that their miserable and often painful existence provides great motivation for cooperation in the experiment that offers an opportunity for relief from suffering and that may hasten recovery. Additional studies are planned that may elucidate the specific indications and contraindications for hypnosis in severe burns and other illnesses and to quantitate some of the effects observed in this investigation.

SUMMARY

Hypnotic and posthypnotic suggestion were successfully used in burned patients as an anesthetic agent and as an analgesic. Eight patients were included in the present study, six of whom were excellent hypnotic subjects; however, the other two were not amenable to this therapy. Suggestion during hypnosis was used to stimulate tremendous appetites in persons otherwise not inclined to eat. Furthermore, suggestions were made to provide motivation to use and exercise injured parts previously immobilized by pain. Hypnosis was successful as a psychotherapeutic agent in correcting some of the detrimental emotional responses and psychological adaptation mechanisms to thermal injury. The potential value of hypnosis in severely burned or chronically ill persons is to be investigated further.

5323 Harry Hines Blvd. (Dr. Crasilneck).

7. Keys, A. B., and others: Biology of Human Starvation, Minneapolis, University of Minnesota Press, 1950, vol. 2.

8. Wolberg, L. R.: Medical Hypnosis, vol. 1: The Principles of Hypnotherapy, New York, Grune & Stratton, Inc., 1948.

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HEPATIC CATHETERIZATION AND UPPER GASTROINTESTINAL HEMORRHAGE IN PORTAL HYPERTENSION

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Portal hypertension and its relation to liver disease, the development of ascites, and upper gastrointestinal hemorrhage has increasingly engaged the interest of the physician and laboratory worker in recent years. The impetus of this renewed study is due to a great degree to the work of such men as Whipple,[1] and Blakemore and Lord [2] on portal shunt for the relief of portal hypertension. Although substantial progress has been made in answering some of the perplexing questions, the understanding of the pathological physiology of these conditions remains to some extent theoretical and confusing at the present time. It is well accepted that portal hypertension may clinically and anatomically be divided into two groups. The first is the extrahepatic group in which the basis for the increased portal pressure arises from obstruction in the extrahepatic portal vein. A number of pathological states may contribute to this, such as post-traumatic thrombosis of the portal vein, persistence of umbilical veins with ultimate cavernous transformation, idiopathic thrombosis, and inflammatory processes in adjacent organs. This type of obstruction gives rise to splenic congestion (Banti's syndrome) and dilated upper gastric and lower esophageal veins and all too frequently terminates in gastrointestinal hemorrhage. Thus, a clinical picture is well established and recognized.

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Revised version of chairman's address read by Dr. Browne before the Section on Gastroenterology and Proctology at the 103rd Annual Meeting of the American Medical Association, San Francisco, June 23, 1954.

1. Whipple, A. O.: Problem of Portal Hypertension in Relation to Hepato-Splenopathies, Ann. Surg. **122**: 449-475, 1945.

2. Blakemore, A. H., and Lord, J. W., Jr.: Technic of Using Vitallium Tubes in Establishing Portacaval Shunts for Portal Hypertension, Ann. Surg. **122**: 476-489, 1945.

The second group is intrahepatic portal hypertension. However, the genesis of this group remains much less understood. It may result from a number of conditions that impede the flow of blood through the portal system, such as constrictive pericarditis or cirrhosis of the liver, either alcoholic or postinfectious. Any of the entities once established ultimately result in a dilatation of the veins of the portal bed, and a similar clinical picture to extrahepatic portal block develops. Since ascites is frequently an accompaniment, the genesis of ascites is normally questioned. It has been stated that intrahepatic portal hypertension is not a cause of ascites per se.[3] This may be true; however, the change in the hepatic vascular pressure pattern experimentally produced by compression of the vena cava above the hepatic vein will produce ascites consistently,[4] and it is possible that the cellular damage and degeneration resulting from the hepatic congestion is more of a primary factor than has been proved up to this time. Cellular damage is not consistently easy to establish by liver biopsy or by present liver function tests, and the factor of osmotic pressure with the application of "Starling principles" would seem as applicable here as elsewhere in the body.

There are probably a number of yet unexplained factors involved in the production of ascites. The experimental work of transposition of the liver into the thoracic cage,[6] with resulting ascites formation in the thoracic cavity, if confirmed, certainly suggests that the ascites at least in part comes from the liver capsule itself, possibly via the lymphatics and not from back pressure in the mesenteric bed and peritoneum. In cases of ascites where liver cell damage cannot be demonstrated, the function may have approached normal by virtue of regeneration, and these regeneration nodules have been demonstrated as a compression factor in portal obstruction.[7] Therefore, with well-functioning liver cells the pressure may be at a level to overcome the damaged sinusoid resistance, and a spilling-over into the lymphoid systems results and lymph sweating of the liver capsule occurs.[8] Again, if it is true that adrenalectomy relieves ascites formation in man, in those cases in which there is cell damage, fibrosis, and portal hypertension, the yet unknown biochemical or hormonal influence of adrenal cortical steroids and the pituitary antidiuretic factor may be the determining factor. It is certain that, just as there are a great number of persons with intrahepatic portal hypertension who do not have ascites, there are those persons in whom the ascites is relieved when portal pressure is reduced, either by the developing of collateral circulation or by portacaval shunt.[9]

It seems very reasonable to accept portal shunt (portacaval or splenorenal) as a desirable procedure in those persons with portal hypertension with congestive splenitis and varicose veins of the stomach and esophagus with the history of hemorrhage, but the question is posed as to the desirability of applying this procedure before disaster occurs and whether this is applicable in cases of intrahepatic hypertension. It would be of great value if methods of accurately determining the existence of portal hypertension and the location of the obstruction could be applied without the necessity of laparotomy. Then the most favorable procedure and approach to the surgical problem could be predicted.

It is with these problems in mind that our present studies were undertaken, first, to confirm the work of Myers and Taylor [10] and Patou and co-workers [11] that hepatic venule catheterization is a valid method of measuring intrahepatic portal pressure; second, to extend this work to the human subject; third, to establish its clinical value in the interpretation of portal hypertension and management of esophageal and gastric hemorrhage; and, fourth, to serve as a basis for further study on the relationship of portal hypertension and the genesis of ascites. As the gastroenterologist views the problem of hemorrhage from ruptured esophageal and upper gastric varices, the diagnosis and management of the immediate catastrophe becomes the paramount issue. Once this issue is solved, the removal of the underlying cause should be approached as vigorously as if the hemorrhage had resulted from peptic ulceration, since it is certain that 50 to 70% of these patients will ultimately die with exsanguinating hemorrhage if the underlying cause, portal hypertension, is not relieved.

HEMORRHAGE FROM UPPER ABDOMINAL VARICES

Diagnosis.—Ruptured esophageal and gastric varices account for 2% of the upper gastrointestinal hemorrhages. At times the differential diagnosis of this bleeding presents a most difficult problem, but on the correctness of this differentiation rests successful management. A careful history may rule out the likelihood of peptic ulcer and establish a previous diagnosis of cirrhosis or arouse suspicion of the possibility. Certainly those with extrahepatic portal block and splenic congestion have been conscious of it for some time. The hemorrhage usually occurs suddenly, the patient rapidly reaches the state of physiological shock, and the emesis of fresh blood becomes alarming. The normal growth and nutritional status of the individual may be a striking clinical feature. The physical examination may reveal the presence of an enlarged liver and spleen. The presence of spider angiomas and ascites is quite a significant finding, and collateral veins may be visible over the abdomen.

There are those who have advocated x-ray examination during the active hemorrhage, and this may be permissible, if a medical and surgical team is well organized. In our hands, this has proved to be of little value, and it is often true that esophageal varices cannot be delineated at this time, even in those patients in whom they may be

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demonstrated at a later date. Should such manipulation be elected under the condition of hemorrhage, the use of the flexible esophagoscope in expert hands may yield more information.[13] The recent publications of Palmer,[13] which suggest great possibilities along this line, deserve further study and confirmation. Laboratory studies such as sulfobromophthalein sodium clearance have been employed with the suggested interpretation that a 20% retention indicates the hemorrhage is from a cirrhosis of the liver and portal hypertension. This has been of questionable value to us, since in patients with severe hemorrhage from peptic ulcer the apparent anoxia and shock have resulted in false readings.

Surgical Management.—A great number of methods of management of the immediate hemorrhage have been suggested. Among the surgical approaches are total gastrectomy and immediate ligation of the splenic artery. Although there is rationale for total gastrectomy as originally advocated by Phemister and Humphreys,[14] the mortality rate in the acute case seems to make its use prohibitive. The morbidity following in those surviving is a serious problem. Immediate ligation of the splenic artery was advocated by Blain,[15] and with splenectomy there would unquestionably be a temporary removal of a degree of back pressure on the cardiac and esophageal veins. It is applicable in a selected case of minor bleeding, but again it is a major procedure and offers uncertain and inconsistent relief. Hepatic artery ligation, as suggested by Rienhoff,[16] carries with it a prohibitive mortality and has yet to prove its value; certainly its applicability in cases of acute hemorrhaging must be questioned.

The injection of sclerosing substances into the esophageal varices at esophagoscopy at the time of hemorrhage has been impractical in our hands and proved of doubtful value as a subsequent plan of management. Although, by repeated esophagoscopy and injections, patients have been tided over until more adequate corrective measures could be instituted. Mediastinal packing, as suggested by Rowntree and Zimmermann,[17] seems to offer no advantage over other less radical procedures, and our experience with its application has been unsatisfactory.

Medical Management.—The most effective management of the bleeding esophageal and upper gastric varices in our experience has been with the double balloon of Sengstaken and Blakemore,[18] placing one in the esophagus and the other in the stomach without great difficulty. The technique of applying the balloon has been described, and a marked advantage in its use has been that a greater degree of continuous traction to keep a single gastric balloon impinged at the cardia with sufficient pressure to stop the bleeding is obviated and the patient is more comfortable.

With the proper application of the balloon, rapid restoration of the blood volume by transfusion gives its most gratifying results. Feeding through the third gastric tube may be carried on and nutritional problems may be avoided. Given adequate attention, prolonged pressure in the esophagus with erosion has not been a real problem to us. The pressure in the portal bed seldom is more than 300 mm. (isotonic sodium chloride solution). Palmer has reported a rise of 265 mm. H_2O in some cases during the Valsalva maneuver as reflected in esophageal varices. In our experience portal pressure as measured by occlusive hepatic venule technique may rise more than 400 mm. of isotonic sodium chloride solution during the Valsalva maneuver. This suggests that there may be a close relationship between transient pressure elevation and esophagogastric varix hemorrhage. Again it would be of much value in applying the intraesophageal pressure if the exact portal pressure could be established. Time for release of the pressure and removal of the balloon is always questionable. The closure of the rent in these veins is almost entirely dependent on the intravascular clot with little supporting tissue. The thrombus is as a rule firm after four to five days. To prevent recurrent hemorrhage, gradual release of the balloon pressure is suggested, but the removal of the balloon should not be attempted until there is assurance that the bleeding will not recur.

The immediate emergency having been successfully met, and the patient having been restored to a normal balance, Linton and Warren have advocated ligation of the esophageal vein as a temporary measure allowing the patient to be gotten in condition for portacaval shunt. This may be advisable in selected patients with damaged livers and ascites, but certainly these patients should be considered individually and evaluated before they are subjected to an added major procedure that does not carry with it a removal of the fundamental cause. These patients under careful control infrequently hemorrhage immediately and may be prepared for more adequate surgery without added procedure of esophageal vein ligation. The objective of the internist should be to adequately prepare the patient for surgery, just as it is his objective to properly treat a peptic ulcer following a hemorrhage. Otherwise he invites recurrence, and these recurrences are too frequently catastrophic.

PORTAL PRESSURE DETERMINATION BY HEPATIC VEIN CATHETERIZATION

Our effort to meet the evident necessity of a method of accurately measuring the portal pressure has prompted the study of hepatic vein and venule catheterization, thereby establishing its validity and clinical value.

Manometer.—Ten normal subjects were employed to establish a norm; without anesthesia the hepatic vein and venule were catheterized and the pressure determined in

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18. Sengstaken, R. W., and Blakemore, A. H.: Balloon Tamponage for Control of Hemorrhage from Esophageal Varices, Ann. Surg. **131**: 781-789 (May) 1950.

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centimeters of isotonic sodium chloride solution. A simple spinal manometer was employed, and 9.5 cm. was used as the zero point, which is the reading established from a point 9.5 cm. above the posterior chest wall with the patient in a reclining position. The results along with the recording of other authors are shown below. Mean

	Centimeters of Isotonic Sodium Chloride Solution (Mean Values)
Portal vein with anesthesia (Welch and co-workers)	20.3
Portal capillary without anesthesia (Davis)	< 15.0
Hepatic vein without anesthesia	11.6
Hepatic venule without anesthesia	16.8
Splenic sinusoid without anesthesia (Davis)	< 15.0
Hepatic venule with anesthesia (Welch and co-workers)	21.8

hepatic vein pressure without anesthesia was 11.6 cm. of isotonic sodium chloride solution. The hepatic venule pressure without anesthesia was 16.8 cm. of isotonic sodium chloride solution.

A differential that might be anticipated is based on the caliber and total volumes of the two veins. With the catheters in situ the patients were sent to surgery (for unrelated reasons) and simultaneous readings of extrahepatic portal vein pressure by direct method and hepatic venule pressures were recorded. The mean readings were: portal vein (direct) 20.3 cm. of isotonic sodium chloride solution and hepatic venule 21.8 cm. of isotonic sodium chloride solution, with a differential of 1.25. These mean readings established a consistently direct ratio between the direct portal vein pressure and that of the hepatic venule, confirming the previous work recorded. Some slight discrepancies stress the advisability of standardization of technique, but the validity of this method is well established.

PATHOLOGICAL CONDITIONS

This same procedure was then applied in patients with alcoholic and posthepatitic cirrhosis of the liver with ascites but not in patients having a history of hemorrhage. The simultaneous pressure at surgery was: portal vein 30.9 cm. of isotonic sodium chloride and hepatic venule 29.7 cm. of isotonic sodium chloride solution, with a differential of 1.7. In a Negro woman, aged 33, who had been a known alcoholic for years and who had had repeated upper gastrointestinal hemorrhage over a three year period, a diagnosis of alcoholic cirrhosis was made. We found that the mean venule pressure was elevated from 16.8 cm. before operation to 21.8 cm. of isotonic sodium chloride solution with anesthesia in the normal patient, and the elevation of hepatic venule pressure in the cirrhotic patient was from 19.2 cm. before operation to 29.2 cm. of isotonic sodium chloride solution during operation. An increase in intrahepatic pressure occurs in both normal and abnormal subjects, but the differential in the patient with a cirrhotic liver is consistently higher. Splenorenal shunt one year ago revealed that hepatic venule pressure before shunt was 27.2 cm. of isotonic sodium chloride solution; during surgery portal pressure was 30.0 cm. One year later the patient had had further hemorrhages, and hepatic venule pressure was 19.1 cm. of isotonic sodium chloride solution. This case serves to illustrate the effectiveness of the shunt procedure in relieving portal hypertension and in indicating whether the shunt is still patent and functioning.

COMMENT

The management of hemorrhage from ruptured esophageal varices evolves itself into checking the bleeding, which is best accomplished by use of the Sengstaken-Blakemore balloon; combating shock; and restoring blood volume, with adequate blood replacement, proper attention to the nutritional problems that may arise, and adequate preparation of the patient for portacaval shunt, which carries with it restoration of a normal or near normal liver function as determined by liver function studies and accurate determination of the portal pressure. The clinical advantages of knowing the portal pressure are evident in determining a correct surgical course.

It seems well established from these studies that the pressure of the hepatic venule bears a consistent, direct relationship to the portal vein pressure, and this pressure as determined by the catheterization method may be applied clinically to determine portal pressure. Standardization of the technique is indicated, and further work on normal subjects as well as on those with pathological conditions of the hepatoportal system is necessary before the clinical implications may be estimated. It would certainly be of distinct value to determine the hepatic vein and the venule pressure in cases of hemorrhage, as well as to differentiate intrahepatic portal block from extrahepatic portal blocking, since it has been shown by Patou and co-workers [13] that the intrahepatic pressure is low in extrahepatic portal block. The surgical approach may be altered. The relief of ascites following shunt procedure again opens the question of intrahepatic portal hypertension and its relation to development of ascites. Further study of its effect on the lymphatics and electrolytes before and after relief of the portal pressure by shunt operation will be continued.

SUMMARY AND CONCLUSIONS

In the management of hemorrhage from upper abdominal varices it is necessary to establish portal pressure; portal venule catheterization is a valid means of measurement. In our studies hepatic vein and venule pressure were determined simultaneously with the direct portal vein pressure measurements at surgical exploration, and, confirming previous work, we found a direct ratio between hepatic venule pressures and extrahepatic portal vein pressure. This method has clinical application in differentiating intrahepatic from extrahepatic portal hypertension and may be used to determine whether portavenous shunts remain patent and function effectively. The possible relationship between intrahepatic portal hypertension and the development of ascites should be explored, and further studies on the effect of this condition per se on the lymphatics as well as electrolytes before and after shunt should be continued.

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TREATMENT OF TWO HUNDRED DISTURBED PSYCHOTICS WITH RESERPINE

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The root of the plant Rauwolfia serpentina Benth., a shrub indigenous to India, was used for centuries in native Indian medicine for the treatment of a wide variety of diseases, including mental disorders. The drug was introduced into the United States for its use in the management of hypertension. In 1952, Müller, Schlittler, and Bein [1] identified a new crystalline alkaloid from the Rauwolfia root. This alkaloid, reserpine, appeared to be the chief active principle of Rauwolfia. In 1954, one of us (N. S. K.) [2] reported on the use of the Rauwolfia whole root and reserpine in the treatment of various psychiatric disorders. The present study is an extension of a study [3] made several months previously, based on the response of 150 chronically disturbed psychotics to reserpine therapy.

SUBJECTS

In a hospital building housing 740 chronically disturbed psychotic female patients, 200 of the most disturbed were selected regardless of diagnosis, age, duration of illness, or previous treatment. They were chosen chiefly for their excited, hyperactive, assaultive, or destructive behavior. Several patients in profound stupor who were severe feeding and management problems were also included. Of the 200 patients selected, 150 had received insulin coma therapy and/or electroconvulsive therapy without lasting benefit. Fifty-five patients were currently receiving maintenance electroconvulsive treatments once or twice a week and had already received from 40 to several hundred individual shock treatments. Fourteen of the patients selected had undergone some form of psychosurgery. The age of the patients selected ranged from 15 to 70. One hundred fifty-nine were given a diagnosis of schizophrenia. The remaining 41 were given the following diagnoses: 7 manic-depressive psychosis, mixed type; 4 involutional psychosis, melancholia; 5 involutional psychosis, paranoid type; 1 involutional psychosis, mixed type; 7 psychosis with mental deficiency; 2 psychosis with cerebral arteriosclerosis; 1 psychosis with cardiorenal disease; 6 epileptic psychosis, epileptic clouded states; 6 epileptic psychosis, deteriorated type; 1 alcoholic psychosis, Korsakoff's type, and 1 psychosis with epidemic encephalitis.

Supervising Psychiatrist, Rockland State Hospital (Dr. Barsa), and Director, Research Facility, Rockland State Hospital, and Research Associate, Department of Neurology, College of Physicians and Surgeons, Columbia University (Dr. Kline).

The reserpine used in this study was supplied by Ciba Pharmaceutical Products, Inc., Summit, N. J., under the name of Serpasil, and the chlorpromazine was supplied by Smith, Kline & French Laboratories, Philadelphia, under the name of Thorazine.

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2. Kline, N. S.: Use of Rauwolfia Serpentina Benth. in Neuropsychiatric Conditions, Ann. New York Acad. Sc. **59**: 107, 1954.

3. Barsa, J. A., and Kline, N. S.: Use of Reserpine in Disturbed Psychotic Patients, Am. J. Psychiat., to be published.

METHOD OF STUDY

In this study 1 mg. tablets of reserpine and 2 cc. ampuls of solution for parenteral use containing 2.5 mg. of reserpine per cubic centimeter were used. Gradually, in prescribing daily for each patient, one of us (J. A. B.) evolved the following general dosage plan,[3] which could be modified to meet individual requirements. When starting therapy the patient would receive 5 mg. of reserpine intramuscularly and 3 mg. orally each morning. This was continued for 10 days. By this time if the patient was showing a beneficial response (not merely sedation), administration of the oral dose was continued but the intramuscular dose was given every other day for three doses. Then, if the patient's condition still showed evidence of improvement, the intramuscular dose was given every fourth day for two doses, and administration of the daily oral dose was continued. Finally, if the patient's mental state remained favorable, administration of the daily oral dose of 3 mg. was continued, but therapy with the intramuscular dose was discontinued as a regular medication and was given only as a booster dose when the patient became very disturbed. After the first 10 days of oral and intramuscular reserpine therapy, if the patient did not show a beneficial response, administration of the 3 mg. orally and 5 mg. intramuscularly was continued daily for 6 more days. If there was still no improvement, the oral dose was still given but the intramuscular dose was increased to 10 mg. every other day and 5 mg. on alternate days. This regimen was carried on for eight days. If there was still no improvement, use of the daily oral dose of 3 mg. was continued but the intramuscular dose was raised to 10 mg. daily for five doses. If at the end of this time no improvement was evident in the mental state of the patient, the intramuscular dose was reduced to 5 mg. daily for three doses and then eliminated completely; administration of the daily oral dose of 3 mg. was continued. An oral dose of 3 mg. was found to be the optimal maintenance dose in most of the patients; however, because of side-reactions, the maintenance dose had to be reduced to 2 mg. in six cases and to 1 mg. in two cases. If the patient showed no improvement at any time during the first six weeks, it was found useless to continue therapy. Sometimes a valuable clue as to whether the patient would respond to therapy could be gained in the early days of treatment, when, for a brief period, perhaps only a day, the patient would suddenly shed her symptoms and seem to emerge out of her psychosis. When this was seen it was an indication that the patient would eventually respond to treatment, even though it might not be until many weeks later.

After completing a course of intramuscular injections of reserpine as outlined in the dosage plan above, if the

patient showed only a slight beneficial response, it was not found useful to continue the intramuscular injections for a longer period. It was more advantageous to keep the patient on the oral dose for two to three weeks and then to repeat the course of intramuscular injections. There was also evidence to indicate that after two or more months, when a patient had stabilized at a certain level of improvement, it was often possible to raise the degree of improvement by repeating the course of intramuscular injections of reserpine.

All of the patients in this study were started on reserpine therapy at a time when they were disturbed. If they had previously benefited from insulin coma or electroconvulsive therapy, they were given reserpine only after they had shown definite evidence of relapse. The maintenance electroconvulsive therapy was discontinued, and the patients were allowed to become disturbed again before reserpine therapy was instituted. While receiving reserpine the patients were given no other somatic therapy and no other sedative drug, with the exception of anticonvulsant medication in a few epileptic patients. It was found by experience that a minimal course of therapy consisted of at least three consecutive months. To discontinue therapy earlier seriously lessened the patient's chances of achieving a satisfactory result from treatment and increased the possibility of relapse. All of the patients in this study received reserpine from three to nine months, with the following exceptions: one patient died suddenly after one month of therapy (discussed below); therapy was discontinued for seven patients after two months because they had shown no evidence of responding to treatment.

RESULTS

The categories of improvement used in the study are defined as follows: by markedly improved is meant that the patient's mental state and behavior had improved to such an extent that with a normal amount of supervision she would be able to adjust adequately outside of a hospital; by moderately improved is meant that, although the patient was not well enough to live outside of a hospital, her behavior had improved to the extent that she was usually cooperative and was adjusting fairly well to the hospital environment; by slightly improved is meant that the patient was a little easier to manage but still manifested excited, assaultive, or destructive behavior. The evaluation of the patient in regard to degree of improvement was made by the physician in charge (J. A. B.), the supervising nurse of the building, and the nurse or attendant who was in charge of the particular patient's ward.

The results obtained in this study can be compared with those of the first 150 cases reported in another paper.[3] Tables 1 and 2 are an analysis of improvement according to diagnosis, in the first 150 cases and in the total 200 cases. Furthermore, in both studies it was found that age did not seem to exert an appreciable effect on the degree of improvement. It was also found that the longer a patient had remained in the hospital, and the longer she had been ill, the less were her chances of achieving a moderate or marked improvement. In the first study, however, 5.6% of the 71 patients hospitalized continuously for more than five years were markedly improved and 80% showed some degree of improvement. In the present study 100 patients had been in the hospital for more than five years; 8% were markedly improved, and 85% showed some improvement. In both studies 92% of the patients showed a degree of improvement as great as or greater than that achieved by electroconvulsive treatments. In only 8% of cases the patient did not show as much improvement from reserpine therapy as from shock therapy. It should be noted that, in the 8% who did better with electroconvulsive therapy, improvement was not maintained for very long after shock treatments were discontinued.

Fourteen patients in our study had previously received some form of psychosurgery. There were two transorbital lobotomies, three topectomies, and nine prefrontal lobotomies. The analysis of the response of these patients to reserpine was as follows: markedly improved, none; moderately improved, three; slightly improved, six; and no improvement, five. It is seen, therefore, that the improvement in this group was not as great as in the others. However, since all of the psychosurgery patients had been mentally ill for many years, this factor, rather than the psychosurgery, may have been the determining element in their failure to respond to reserpine. Several patients who had shown an inadequate response to reserpine alone were started on a course of reserpine combined with a daily oral dose of 25 to 100 mg. of chlorpromazine [10-(γ-dimethylaminopropyl)-2-chlorophenothiazine hydrochloride]. The latter drug seemed to potentiate the effects of reserpine. The results were so encouraging that a large series of patients were given the combined reserpine-chlorpromazine therapy. This has been reported in another paper.[4]

TABLE 1.—*Improvement with Reserpine in Respect to Diagnosis in 150 Cases*

Diagnosis	Markedly Improved	Moderately Improved	Slightly Improved	No Improvement	No. of Cases
Dementia praecox					
Paranoid	4	12	10	3	29
Catatonic	17	27	13	11	68
Hebephrenic	1	8	6	4	19
Mixed	4	4	1	1	10
Dementia praecox, total	26	51	30	19	126
Manic depressive, mixed	1	1	1	..	3
Involutional psychosis, melancholia	1	1	..	1	3
Involutional psychosis, paranoid	..	4	..	..	4
Psychosis with mental deficiency	3	..	..	3	6
Psychosis with cerebral arteriosclerosis	..	..	..	1	1
Psychosis with cardiorenal disease	1	..	..	..	1
Epileptic psychosis, epileptic clouded states	..	1	2	..	3
Epileptic psychosis, deterioration	..	..	1	..	1
Alcoholic psychosis, Korsakoff's	..	1	..	..	1
Primary behavior disorders, simple adult maladjustment	..	..	1	..	1
Total	32	59	35	24	150

4. Barsa, J. A., and Kline, N. S.: Combined Reserpine-Chlorpromazine Therapy in Disturbed Psychotics: Preliminary Report, Am. J. Psychiat., 3: 780, 1955.

CLINICAL COURSE

In a previous report,[3] one of us (J. A. B.) distinguished three stages in the patient's course of therapy: the sedative period, the turbulent period, and the integrative period. The sedative period begins very soon after the start of therapy and lasts from 3 to 10 days. In this period the drug produces chiefly a sedative effect, the patient becoming quieter, less disturbed, and perhaps rather drowsy. This is followed by the turbulent period, in which the patient's behavior becomes more disturbed and the delusions and hallucinations are often more pronounced. The patient often complains of feeling strange, not like herself, and feeling at times that she has no control over her impulses. Some patients, exerting considerable control prior to therapy, seem to "break wide open" at this time. Tremulousness, restlessness, mounting tension, and anxiety are prominent symptoms. The duration of this period varies from a day to two or three weeks. It must be emphasized that the patient should be treated vigorously with oral and intramuscular administration of reserpine during the early weeks and that the dosage should not be reduced until the patient has passed over the hump of the turbulent period. The successfully treated patient then passes into the integrative period, in which she becomes more cooperative, more friendly, and more interested in her environment. Delusions and hallucinations gradually fade until they seem to disappear. This final period lasts from one to six (or more) months until medication is discontinued because of the satisfactory therapeutic response of the patient. It must be noted that only those patients responding favorably will successfully pass through these stages. Some patients seem either never to progress beyond the sedative period or, if they do pass into the turbulent period, to be unable to achieve enough ego strength to attain the integrative period, and they return to the sedative stage. In such cases the maximum therapeutic effect to be expected is one of sedation.

TABLE 2.—*Improvement with Reserpine in Respect to Diagnosis in 200 Cases*

Diagnosis	Markedly Improved	Moderately Improved	Slightly Improved	No Improvement	No. of Cases
Dementia praecox					
Paranoid	9	19	12	3	43
Catatonic	19	30	16	11	76
Hebephrenic	1	11	8	4	24
Mixed	6	5	2	3	16
Dementia praecox, total	35	65	38	21	159
Manic depressive, mixed	2	1	4	..	7
Involutional psychosis, melancholia	2	1	..	1	4
Involutional psychosis, paranoid	..	4	1	..	5
Involutional psychosis, mixed	..	..	1	..	1
Involutional psychosis, total	2	5	2	1	10
Psychosis with mental deficiency	3	..	1	3	7
Psychosis with cerebral arteriosclerosis	1	..	..	1	2
Psychosis with cardiorenal disease	1	..	..	..	1
Epileptic psychosis, epileptic clouded states	..	2	4	..	6
Epileptic psychosis, deterioration	..	2	3	1	6
Epileptic psychosis, total	..	4	7	1	12
Alcoholic psychosis, Korsakoff's	..	1	..	..	1
Psychosis with epidemic encephalitis	..	..	..	1	1
All diagnoses, total	44	76	52	28	200

SIDE-REACTIONS

Drowsiness and a sense of fatigue were frequent manifestations during the sedative period. Generalized tremulousness, increased salivation, dizziness, abdominal cramps, diarrhea, nasal stuffiness, edema of the face and feet, frequency of urination, and paresthesias of the extremities were often experienced during the early weeks of therapy, especially during the turbulent period. In an effort to combat these symptoms, which may be very distressing to the patient, various drugs were used, even though as a rule the above symptoms eventually disappeared spontaneously without the need of reducing the dosage of reserpine. Atropine was used with varying success against the tremulousness. Oxyphenonium (Antrenyl) bromide, an anticholinergic substance, was very effective with the abdominal symptoms. Phenylephrine (Neo-Synephrine) hydrochloride or ephedrine nose drops were used to alleviate the nasal stuffiness. Amphetamine derivatives were found useful in counteracting the drowsiness and sense of fatigue when they became very severe. Most effective against the tremulousness, the restlessness, and the feelings of tension, which were especially acute during the turbulent period, was benztropine (Cogentin) methanesulfonate, a synthetic anti-Parkinsonism drug with antihistaminic and anticholinergic properties.

Three patients had grand mal convulsive seizures for the first time during their first six weeks of reserpine therapy. Electroencephalograms taken on two of the patients revealed an epileptic pattern. Two topectomy patients also had convulsive seizures for the first time during the first month of therapy. The electroencephalogram of one of these patients was within normal limits, whereas the other was suggestive of a convulsive disorder. One patient who had had a prefrontal lobotomy in 1949, and who in the year preceding treatment had averaged two convulsive seizures a month, had five grand mal convulsive seizures in the first month of therapy. One patient with idiopathic epilepsy who during the previous year had had no more than one grand mal and two petit mal seizures a month had two grand mal and three petit mal seizures during the first month of therapy. One patient who in June, 1953, had developed her first spontaneous convulsive seizures while receiving a course of electroconvulsive therapy, and who since then had no more than one grand mal or one petit mal seizure a month, had four grand mal convulsive seizures during her first month of reserpine therapy. It is important to note that the abovementioned increased incidence of convulsive seizures did not occur beyond the first six weeks of reserpine therapy, even though therapy with the drug was continued. Another observation was that the psychotic symptoms and disturbed behavior of the epileptic patients included in this study were very resistant to the beneficial effect of reserpine. Whether the drug has specific convulsant properties, or whether the convulsions were due to the disruption of the body's homeostasis in susceptible individuals, cannot be answered at the present time. Increased appetite and gain in weight commonly manifested themselves early in therapy. If, however, after an early in-

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crease, appetite later fell off considerably and became poor, this was usually a sign of overdosage of reserpine. Another sign of toxic effect of reserpine was the development of an organic type of mental confusion. This symptom would disappear when the dosage of reserpine was decreased.

Ten patients while receiving therapy developed a typical picture of Parkinsonism. Three of the patients developed the signs after two weeks of therapy, five after four weeks, and two after three months. All were receiving intramuscular injections of reserpine at the time, and six of the patients had been receiving 10 mg. doses for several days. The patients showed a mask-like facies (this had to be distinguished from the drowsy, lethargic facies, due to the sedative effect of the drug), excessive salivation, drooling, rigidity with cogwheel phenomena, a pill rolling tremor, and a slow, shuffling gait with small steps and loss of associated movements. The rigidity in the patients was usually more marked than the tremor. This Parkinsonian picture was made to disappear merely by reducing the dosage of reserpine. In one patient who developed Parkinsonism, the symptoms were made to disappear, then reappear, and again disappear, by changing the dosage of reserpine. The development of Parkinsonism was not an indication to reduce dosage of reserpine unless satisfactory mental response had already been reached.

Three deaths occurred during the nine months of this study. One patient on the fifth day of therapy committed suicide by hanging. One patient, apparently in good physical condition, died suddenly after one month of treatment. Autopsy permission could not be obtained. Another patient, who had previously shown no evidence of diabetes, although there was a family history of this disease, rapidly lapsed into diabetic coma and, despite treatment for the diabetes, died 48 hours later. This patient had received reserpine for three months. Because of this case and the possibility that reserpine might have activated a latent diabetes, thereafter the urine of all patients receiving reserpine was examined every month. No further cases of diabetes were found. It was felt, therefore, that these deaths were not due to the reserpine therapy.

COMMENT

Hess [5] showed that stimulation of certain nuclei in the supraoptic area of the hypothalamus of the cat produced a peculiar state of quiescence or sleep, associated with miosis, lowering of body temperature, fall of blood pressure, bradycardia, increased intestinal activity, and slowing of respiration. According to the work of Bein,[6] and Bein, Gross, Tripod, and Meier,[7] reserpine acts directly on central autonomic substrates, possibly in the hypothalamus, and that, rather than a stimulation of the parasympathetic centers, it causes a depression of the corresponding central sympathetic functions. Schneider and Earl [8] in a recent paper have further investigated the mode of action of reserpine.

In the present study, it was noticed that in some patients the improvement produced by reserpine did not last long after therapy was completed. Of 41 markedly improved patients whose medication was discontinued, 2 patients showed evidence of relapsing after being without the drug for one week, one patient relapsed after three weeks, another after four weeks, another after five weeks, another after six weeks, two after seven weeks, and one after eight weeks. The remaining 32 patients (78%) have not relapsed, although they have not received reserpine for as long as five months. The patients who relapsed were treated again and brought back to their former state of improvement. In re-treating them, even those who relapsed after a week, it was found necessary to start afresh and give them another complete course of therapy. The value of reserpine in the treatment of chronically disturbed patients can be seen in the fact that, since the advent of reserpine therapy in this building of 740 patients, electroconvulsive therapy has been completely eliminated, whereas previously about 150 electroconvulsive treatments were given every week.

Several questions arise regarding the nature and significance of the turbulent period in the course of therapy. This period is indeed a crucial one, for it presents the biggest hurdle in the successful outcome of therapy. Furthermore, during this period the patient becomes most distressed and suffers the greatest anxiety. Some patients seem to fall apart completely at this time. But is this period an essential step in the successful course of therapy? Does it represent the release of anxiety resulting from the breakup of old behavior patterns? Or is this period of increasing tension and anxiety with the consequent upsurge of defense symptoms merely a side-effect in therapy? Is it a psychic side-effect perhaps derived from the various physiological changes in this parasympathetic dominant stage in therapy? Can, therefore, this period be eliminated without jeopardizing the success of therapy? It has been found that benztropine methanesulfonate can remove many of the distressing symptoms of the period and yet not decrease the effectiveness of therapy. Moreover, when reserpine is combined with chlorpromazine the turbulent period is shorter and less intense, but the potency of therapy is not diminished. Thus, it would seem that a continuing search should be made for drugs capable of eliminating the turbulent period and yet not lowering the effectiveness of reserpine.

CONCLUSIONS

Reserpine is definitely of value in the treatment of chronically disturbed psychotic patients. Twenty-two per cent of a group of 200 such patients have improved sufficiently to be judged well enough to leave the hospital. Eighty-six per cent of the patients showed some degree of improvement, and 71% did better with reserpine therapy than with electroshock. Although certain toxic effects of reserpine (including Parkinsonism and convulsions) were observed in the treated patients, none of these were permanent; all of them disappeared when the dosage of reserpine was reduced. There is evidence to indicate that in some patients the therapeutic effect of reserpine lasts only as long as the drug is being administered; however, in 78%, improvement has been maintained after medication was discontinued.

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8. Schneider, J. A., and Earl, A. E.: Effects of Serpasil on Behavior and Autonomic Regulating Mechanisms, Neurology **4**: 657, 1954.

CLINICAL NOTES

JAUNDICE AND AGRANULOCYTOSIS WITH FATALITY FOLLOWING CHLORPROMAZINE THERAPY

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and
Gordon D. LaZerte, M.D., Charlotte, N. C.

About two years ago the drug chlorpromazine (Thorazine) [10-(γ-dimethylaminopropyl)-2-chlorophenothiazine hydrochloride] was introduced in France and since then has enjoyed increasing use in psychiatry and medicine as a sedative and an antiemetic. The only serious side-effect mentioned has been jaundice,[1] which has been reported to be transient in all cases but one.[1d] In that case there was valvular heart disease with congestive failure, and the suggestion was made that passive congestion of the liver rendered it vulnerable to the toxic action of chlorpromazine. The following report concerns a patient in whom jaundice occurring after chlorpromazine therapy did not subside and in whom agranulocytosis developed prior to death.

REPORT OF A CASE

A 67-year-old white housewife was seized with acute epigastric pain, fever, and chills on Sept. 10, 1954, and was admitted to the hospital. The pain was more severe and different than any she had experienced previously, and it remained localized in the epigastrium and right upper abdomen. Her temperature rapidly reached 104 F. Generalized aches and malaise accompanied the febrile state, but no other acute symptoms of importance were present. During the months preceding her admission the diagnosis of leukemia had been suspected. For several months the leukocytes had numbered as many as 45,500 per cubic millimeter, with a preponderance of lymphocytes in the differential smear. On Aug. 20, 1954, a sternal bone marrow study revealed "moderate lymphocytosis which is consistent with but not diagnostic of chronic lymphatic leukemia." Lymphadenopathy and splenomegaly had not been observed. A persistent skin eruption had been present, and the biopsy of the skin on Aug. 20, 1954, had shown "slight chronic, non-specific inflammation of the skin. The findings are insufficient to warrant a diagnosis of leukemia." The lymphocytosis gradually declined during the next several weeks. It was ascertained that a cholecystogram on July 28, 1954, had been normal.

The significant findings of the physical examination upon admission were mild icterus, temperature of 104 F, and tenderness in the epigastrium and right subcostal areas. The liver edge was barely palpable on deep inspiration. Apparently unrelated physical findings included a scaling erythematous rash over the base of the neck and upper thorax, inactive mixed arthritic changes of the fingers and hands, and moderate atherosclerotic changes in the peripheral and retinal blood vessels. The blood pressure was 120/60 mm. Hg. Within 36 hours the fever disappeared without the use of antibiotic or chemotherapeutic agents; however, the colicky epigastric pain persisted and the jaundice increased. The course of the jaundice as measured by the serum bilirubin level is shown below.

	Date							
	9/13	9/14	9/16	9/17	9/18	9/21	9/23	9/25
Direct, mg. per 100 cc.	4.85	6.05	7.15	8.15	8.60	6.15	11.65	15.00
Indirect, mg. per 100 cc.	1.30	1.70	1.15	2.10	2.40	2.00	3.35	0.95

On Sept. 14 the cephalin flocculation was negative at 24 hours and a trace at 48 hours. The alkaline phosphatase level was 7.7 Bodansky units, urine urobilinogen was present in a dilution of 1:30, and stool urobilinogen was 3.5 Ehrlich units per 100 gm. of feces. The serum cholesterol level was 325 mg. per 100 cc., the serum amylase value was 33 Somogyi units, the serum albumin level was 3.7 gm. per 100 cc., and the globulin level was 2.1 gm. per 100 cc. Bile was present in the urine. The prothrombin time was 75% of normal, and three days later was 100%. The hemogram during this last illness is shown in the table. The red blood cells showed normal osmotic fragility. The blood Wassermann and Kahn tests were negative. The values of blood urea nitrogen, fasting blood sugar, serum sodium, and serum potassium were within normal limits. Chest x-ray was within normal limits for her age, showing mild arteriosclerotic changes in the great vessels. The electrocardiogram was within normal limits.

Hemogram of Patient with Jaundice and Agranulocytosis

				Leukocytes					
Date, Sept., 1954	Erythrocytes, Million per Cu. Mm.	Hemoglobin, Gm. per 100 Cc.	Total per Cu. Mm.	Polymorphonuclear, %	Eosinophils, %	Basophils, %	Lymphocytes, %	Monocytes, %
12	4.4	12.5	13,100	34	1	..	65	..
13	4.9	13.5	14,000	24	1	1	71	3
16	...	....	17,700	29	..	..	63	8
18	Exploratory laparotomy and choledochostomy							
19	4.5	12.0	12,100	36	2	..	58	4
22	4.0	11.0	12,200	2	1	..	95	2
23	4.5	12.0	9,200	..	2	..	98	..
24	...	....	5,500	..	4	..	96	..
25	3.8	10.2	4,900	..	..	..	99	1

A provisional diagnosis of progressing obstructive jaundice was made, and exploratory laparotomy was done on Sept. 18. At operation the biliary tract was entirely normal. The common bile duct was not dilated. The liver appeared normal, as did the spleen, pancreas, gallbladder, stomach, duodenum, and general peritoneal surfaces. The common bile duct was opened and a probe passed readily into the duodenum and up to the bifurcation of the hepatic ducts. A wedge-shaped scalpel biopsy of the liver was taken. Immediately postoperatively she received one intramuscular injection of 10 mg. of chlorpromazine for nausea. At this time it was learned that 25 mg. of chlorpromazine had been administered orally twice daily by another physician from Aug. 11 to Sept. 1, for the relief of itching dermatitis. Her medication during the preceding months included phthalylsulfathiazole (Cremothalidine), ½ oz. (15 cc.) four times a day, given for diarrhea from Aug. 4 to Aug. 16. No other drugs known to cause jaundice or hematological disorder had been taken, nor had whole blood or blood fractions been administered.

The immediate postoperative course was in no way unusual. On Sept. 20 a program of therapy including administration of corticotropin (ACTH), intravenously given glucose, parenteral injections of liver extract and thiamine chloride, and large oral supplements of amino acids and vitamins was started. Except for transient decline in the serum bilirubin level three days postoperatively, there was a progressive increase in jaundice. On Sept. 23 the blood urea nitrogen level was 11 mg. per 100 cc.; the blood potassium level declined to 3.2 mEq. per liter. There was copious bile flow through a T-tube, and bacteriological ex-

From the departments of medicine and pathology of the Charlotte Memorial Hospital.

1. (*a*) Winkelman, N. W., Jr.: Chlorpromazine in the Treatment of Neuropsychiatric Disorders, J. A. M. A. **155**: 18-21 (May 1) 1954; (*b*) Elkes, J., and Elkes, C.: Effect of Chlorpromazine on the Behavior of Chronically Overactive Psychotic Patients, Brit. M. J. **2**: 560-565 (Sept. 4) 1954. (*c*) Lancaster, N. P., and Jones, D. H.: Chlorpromazine and Insulin in Psychiatry, ibid. **2**: 565-567 (Sept. 4) 1954. (*d*) Broadman, R. H.: Fatal Case of Toxic Hepatitis Implicating Chlorpromazine, Medical Memoranda, ibid. **2**: 579 (Sept. 4) 1954. (*e*) Chesney, W. M.: Chlorpromazine and Jaundice, correspondence, ibid. **2**: 591 (Sept. 4) 1954. (*f*) Zatuchni, J., and Miller, G.: Jaundice During Chlorpromazine Therapy, New England J. Med. **251**: 1003-1006 (Dec. 16) 1954.

amination of the bile did not show bacteria on either smear or culture. Agranulocytosis developed a few days postoperatively (see table). Coincident with this there appeared aphthous lesions in the right tonsil fossa. The blood pressure remained normal, the cardiac function remained normal, and the lung fields remained clear. No unusual physical findings were noted in the abdomen or legs at any time. The dermatitis remained unchanged. Fever (101 to 103 F) reappeared on Sept. 21 (three days postoperatively) and persisted. With the appearance of fever the administration of oxytetracycline (Terramycin) intravenously and streptomycin intramuscularly was begun. Penicillin was withheld because of a history of severe penicillin sensitivity.

On Sept. 24, 1954, the patient became confused, delusional, and mildly stuporous, although at this time it was still possible to arouse her. At 11 a. m. on Sept. 25, after having received 300 cc. of an intravenous infusion of 5% glucose with 0.3% potassium chloride, she developed acute pulmonary edema with peripheral vascular collapse. She died approximately three hours later.

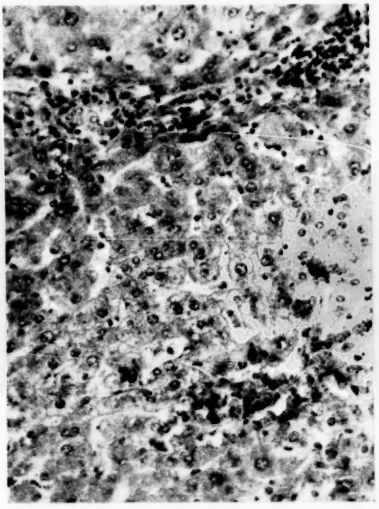
Morphological Findings.—Histological examination of the liver biopsy showed normal architecture (see figure). The bile canaliculi of the central zones were markedly distended by very dark green to black homogeneous material, and small globules of similar but lighter green material were present within many of the parenchymal cells. Only minor changes of hepatic cells were found, characterized by slight cytoplasmic vacuolation and a minor degree of nuclear variation. There was a mild infiltration of neutrophils and mononuclear cells about some of the small bile ducts, and occasional minute foci of neutrophils were found within the lobules. The significance of the cellular infiltrate is in doubt because the biopsy was taken by scalpel from the subcapsular portion of the liver after considerable manipulation of the liver incident to the exploration of the bile ducts.

Autopsy was performed two hours after death. The body was deeply jaundiced. The biliary tree was patent throughout. The changes in the liver were essentially the same as described in the biopsy except that the mild cellular infiltrate was absent. The heart showed marked fatty degeneration of myocardial fibers. The lungs were hyperemic and edematous. Microscopically they were characterized by the presence of intra-alveolar edema fluid and large colonies of bacteria with slight chiefly mononuclear cellular response. There was a striking absence of neutrophils. The bone marrow was hypocellular and showed no evidence of leukemia. Maturation of the granulocytic series was not evident beyond the myelocyte stage. No significant abnormalities were found in the spleen or lymphatic tissues.

COMMENT

A causative relationship in this case between the administration of chlorpromazine, subsequent jaundice, and agranulocytosis can only be assumed. The circumstantial evidence, however, is strong in the light of recent experience. Jaundice, according to our own information,[2] appears to be a more frequent complication of chlorpromazine therapy than the published reports indicate. In two cases in addition to our own the syndrome led to surgical exploration of the biliary tract.[3] Granulocytopenia has been reported in only a few cases [4] and has been a mild and transient phenomenon.

The liver lesion produced a clinical syndrome resembling pure obstructive jaundice, and the histological appearance of the liver was characterized by central lobular bile stasis without significant evidence of hepatocellular degeneration or inflammatory infiltrate. Similar changes have been reported several times as a complication of drug therapy with a variety of other durgs. In 1940, Hanger and Gutman [5] reported a series of patients who developed jaundice of obstructive type during arsphenamine therapy. They emphasized that these cases were clinically and morphologically distinct from the more common acute yellow atrophy that was known to be a complication of arsphenamine. The onset in these cases that resembled obstructive jaundice was abrupt and associated with fever, nausea, and vomiting. Liver function studies indicated obstructive jaundice, and four patients underwent surgical exploration and liver biopsy. Morphological findings in the liver biopsies were similar to the changes found in the reported case, but greater emphasis was placed on the inflammatory infiltrate. Needle biopsy was done in one case of arsphenamine jaundice, and in that case the inflammatory infiltrate was less impressive. Thiouracil has produced a similar syndrome of obstructive jaundice with the bile stasis [6] and so has methyltestosterone.[7] In some of these cases the inflammatory changes were more pronounced than in others, but this observation is difficult to evaluate in biopsies obtained following surgical manipulation. In the few specimens obtained by needle biopsy [8] and in the autopsy in this case, the inflammatory infiltrate was slight or absent,



Globular masses of dark inspissated bile distend the canaliculi clustered about the central vein at the lower right. Traversing the top of the field is a portal canal with mild cellular infiltration and a normal interlobular bile duct (× 150).

2. (*a*) Reece, J. C.: Personal communication to the authors. (*b*) Pritchard, R. W.: Personal communication to the authors. (*c*) Lide, T. N.: Personal communication to the authors. (*d*) Crawford, R. L.: Personal communication to the authors.

3. Footnotes 1*f* and 2*a*.

4. Lomas, J.: Chlorpromazine and Agranulocytosis, correspondence, Brit. M. J. **2**: 358-359 (Aug. 7) 1954. Footnote 1*b*.

5. Hanger, F. M., Jr., and Gutman, A. B.: Postarsphenamine Jaundice Apparently Due to Obstruction of Intrahepatic Biliary Tract, J. A. M. A. **115**: 263-271 (July 27) 1940.

6. Gargill, S. L., and Lesses, M. F.: Toxic Reactions to Thiouracil: Report of Cases with One Fatality, J. A. M. A. **127**: 890-898 (April 7) 1945.

7. Werner, S. C.; Hanger, F. M., and Kritzler, R. A.: Jaundice During Methyl Testosterone Therapy, Am. J. Med. **8**: 325-331 (March) 1950.

8. Footnotes 1*f*, 5, and 7.

supporting the view that this feature is incidental. It is possible that the infiltrate is evanescent, and study of more needle biopsies from these cases is necessary to determine accurately the occurrence of inflammatory changes. Since cholestasis is known to occur in some of these cases in the absence of necrosis or inflammatory changes, the terms "hepatitis" and "cholangiolitis" appear to us to be less fitting than the more descriptive "intrahepatic cholestasis."

The pathogenesis of the jaundice in all of these cases is obscure. There is no definite evidence of significant liver cell damage revealed by clinical laboratory findings or by histological examination, nor do the morphological findings provide any evidence of a block in the biliary collecting system. The bile simply pools in the canaliculi of the central zones. In the present case we were impressed by the exceptionally dark color of the bile in the canaliculi, as if it were concentrated and viscid. It is possible that the fundamental change produces abnormally viscid bile that cannot be excreted normally. This mechanistic theory was proposed long ago by Eppinger,[9] who postulated that primary intrahepatic cholestasis was due to injury of the membrane lining the bile canaliculi, which led to an admixture of coagulable protein with the bile as it was formed. The normal appearance of the bile that drained from the T-tube in this case suggests that at least the peripheral portions of the hepatic lobules produce normal bile. By whatever mechanism produced, central lobular stagnation of bile is the outstanding abnormality and correlates with the clinical evidence of obstructive jaundice. This lesion does not appear to be an uncommon complication of chlorpromazine therapy but is usually reversible as indicated by the many cases of transient jaundice reported already.[10] In several of these cases the onset of jaundice occurred several days after the drug was withdrawn.

Agranulocytosis on the other hand is an uncommon complication of chlorpromazine therapy, and in the present case it may represent the fatal complication. Although the patient presented a marked absolute lymphocytosis some months prior to therapy, it was not a prominent feature at the onset of the terminal illness. The possibility of leukemia, which was considered when the lymphocytosis was first noted, was excluded by the autopsy findings. The marrow showed the findings commonly associated with agranulocytosis due to drugs: hypocellularity, moderate lymphocytic infiltration, and maturation arrest of the granulocytic series. The finding of colonies of bacteria in the pulmonary air sacs only two hours post mortem was interpreted as uncontrolled bacterial proliferation secondary to the agranulocytosis.

SUMMARY AND CONCLUSIONS

In a case of persistent jaundice and fatal agranulocytosis following chlorpromazine therapy the jaundice was obstructive in type without evidence of liver cell damage and led to exploratory laparotomy. The liver lesion was identified as "intrahepatic cholestasis" without extrahepatic biliary obstruction.

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9. Eppinger, H., cited by Hanger and Gutman.[8]
10. Footnotes 1, 2*a*, *b*, and *c*.

SPECIAL ARTICLE

PANEL ON LIVER DISEASES

MODERATOR:
Albert M. Snell, M.D., Palo Alto, Calif.

DISCUSSORS:
Robert Kark, M.D., Chicago
Hugh R. Butt, M.D., Rochester, Minn.
Victor Sborov, M.D., San Francisco
C. M. Jones, M.D., Boston

MODERATOR: The questions to be considered by this panel fall into four groups: (1) the place of diet and drugs in the treatment of liver disease; (2) infectious hepatitis and its consequences; (3) the nature, clinical recognition, and management of hepatic insufficiency; and (4) the control of hemorrhage from esophageal varices. We are asked to discuss first the type of diet to be recommended for a patient with atrophic cirrhosis.

DR. JONES: By the term atrophic cirrhosis, I assume that one means chronic liver disease secondary to those degenerative processes that appear to be due to a diet inadequate in total calories and more particularly in protein content. The term might also be used to designate the progressive fibrosing process known as postnecrotic cirrhosis. Both processes are eventually characterized by serious modification of liver architecture, by interference with normal intrahepatic circulation, and by a reduction in the number of normally functioning hepatic cells. Roughly stated, the degree of compensation in any given case will depend on the integrity of the hepatic circulation and on the bulk of the remaining functioning units. Other things being equal, two fundamental requirements must be met to maintain compensation. One is a reduction in metabolic demands, which can be obtained only by a restriction of activity to a level well within fatigue limits, and the other is the provision of a balanced diet, adequate in calories and adequate in protein. The caloric content should be sufficient to enable the patient to maintain his weight at an optimal figure. The actual protein content should be about 1.5 gm. to 2.0 gm. per kilogram of optimal body weight, a figure definitely in excess of that which can be tolerated by a patient with impending hepatic insufficiency. There need be no avoidance of simple fats except in excessive amounts. Thus, an acceptable diet for a patient whose optimal weight is 150 lb. (about 70 kg.) would be approximately as follows: protein, 110 to 120 gm.; carbohydrate, 225 to 250 gm.; fat, 80 to 90 gm.; calories, 2,000 to 2,300.

MODERATOR: How effective are diuretics, such as mercurials, acetazolamide (Diamox) and exchange resins, in liver disease?

DR. SBOROV: Any or all of the diuretics mentioned may be tried in the patient with liver disease who shows so-

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dium and water retention, although success with these preparations has not been dramatic. It has been our impression that, if one diuretic is effective, the others are likewise effective, but a satisfactory diuresis has been infrequent in our experience. Apparently there is some mechanism present for sodium and water retention by the kidney that is enhanced in the presence of liver disease. This antidiuretic phenomenon can change abruptly for unexplained reasons in patients with chronic liver disease, especially in a recovering phase, so that there may be a spontaneous diuresis of sodium and water. In our experience, the only effective means of controlling the accumulation of edema and ascites is sodium restriction to a level of less than 1 gm. of sodium chloride daily.

MODERATOR: Is human serum albumin useful in the treatment of advanced liver disease with ascites?

DR. BUTT: There are a variety of opinions concerning the use of human serum albumin in the treatment of advanced liver disease. The early clinical trials of this substance showed that the concentration of albumin in the serum could be raised by prolonged administration, but it was also shown that the albumin entered the ascitic and edema fluid after intravenous administration, regardless of whether diuresis occurred. Faloon and his associates noted that serum albumin was found to be neither specific for the relief of ascites nor very helpful in the treatment of underlying liver disease. Kunkel and his group observed that those patients who were treated soon after they began to accumulate ascitic fluid responded better to this therapy and that those most resistant to treatment were patients who had been accumulating fluid for long periods. In general, those persons with the lowest plasma albumin levels and with the greatest edema usually obtained the best results. Frequently 8 to 10 units of albumin administered over a period of four to seven days produced a good diuresis in such patients. Post and his group administered serum albumin to 16 patients in hepatic coma or semicoma, and 9 of these patients recovered. Their data did not support the view that albumin therapy is associated with an increased incidence of bleeding from esophageal varices; however, the potential danger of circulatory embarrassment from expanding plasma volume and from rising venous pressures associated with albumin therapy requires careful evaluation of the circulatory status of a patient before albumin is given.

MODERATOR: Does a low-sodium diet contribute anything to the treatment of cirrhosis except insofar as it may control the rate of ascites formation? Where does potassium fit into the picture?

DR. SBOROV: In my opinion, it is not necessary to maintain a low-sodium diet in chronic liver disease where adequate sodium excretion is present in the urine and where there is an absence of clinical edema and ascites. In fact, with rigid salt restriction and too enthusiastic use of mercurial diuretics, a low-sodium syndrome may result. Potassium levels in chronic hepatic disease should be watched carefully. Artman and Wise have recently pointed out that hypokalemia may be present in chronic liver disease where there are adequately functioning kidneys. Twenty-five of 30 patients showed a hypokalemia at one time in the course of the disease. The causes of hypokalemia in decompensated hepatic disease are (1) a poor appetite with decreased potassium intake in the diet, (2) diarrhea and vomiting, (3) a negative nitrogen balance, and (4) urinary loss of potassium due to glycogen mobilization in starvation. Intravenously administered glucose and corticosteroid therapy can also cause lowered blood levels of potassium. Hyperkalemia may be an important factor to cope with where there has been renal shutdown in decompensated liver disease. In this situation, orally and intravenously administered potassium should be withheld and the known measures for reducing blood levels, such as the intravenous use of glucose and insulin, as well as testosterone therapy, should be employed. Extracorporeal dialysis with the artificial kidney has also been successful in such cases.

MODERATOR: The incidence of hepatitis is increasing in the United States. Of especial concern to physicians is the serum-borne type. What can be done to control its further spread?

DR. KARK: The first detailed study of so-called homologous serum hepatitis was made by Flaum and his coworkers in 1926 and was hidden by publication in the supplements to the *Acta medica scandinavica*. At that time, they were interns at a hospital in Lund, Sweden, where they studied an epidemic of jaundice in a diabetic ward that affected several patients and four technicians. Flaum recognized that the common denominator in the outbreak was a spring lancet that the technicians used to collect blood for measuring fasting blood sugar levels. On the basis of their study, Flaum and his colleagues stated that the epidemic of jaundice was viral in origin, that it was transmitted by needle puncture, and that it had an incubation period of about 90 days. Even more striking was their correct prediction that the epidemic would stop in about 90 days if the patients' blood specimens were collected with disposable needles.

We now know that serum hepatitis may be transmitted by doctors, dentists, nurses, and technicians who use contaminated needles, especially needles kept and sterilized in alcohol. The spread of serum hepatitis may be controlled (1) by using sterile disposable needles; (2) by using a fresh, adequately heat-sterilized (pressure sterilization or boiling for 15 minutes) hypodermic needle each time the skin is punctured; and (3) by not using blood from donors who give a history of jaundice or who have or who have given a history of having had a disease of the liver. Pooled plasma is a potent source of serum (SH, or virus B) hepatitis, and, while it has been claimed that storage in liquid form or irradiation with ultraviolet light kills the virus in the plasma, the data that have been presented are by no means convincing. The incidence of serum hepatitis is estimated at 0.3% for whole blood, 1.5 to 2.5% for small plasma pools, and 4.5 to 20% for large plasma pools.

MODERATOR: Would you be willing to receive a transfusion from anyone who had had hepatitis within a year?

DR. SBOROV: I personally would avoid receiving any blood transfusion if it were possible to do so. It has been shown that certain persons are capable of harboring and

transmitting the virus of hepatitis, even in the absence of any evidences of active disease and even if they have not had hepatitis in the past. The risk of hepatitis is probably higher where there is a history of hepatitis in the donor. Even though the risk is small (probably less than 1% for a single transfusion from a donor who gives no history of hepatitis), there is a definite incidence of viral hepatitis after this procedure. It is not known what percentage of donors with a history of hepatitis will transmit the disease, but it is higher than that from the general donor population. The risk is, of course, higher when more transfusions are used and especially when large lots of plasma are pooled. In each instance where use of blood or plasma is contemplated, the risk of hepatitis developing must carefully be weighed against the risk of withholding the transfusion.

MODERATOR: A patient with a history of viral hepatitis has slight, persistent jaundice but is otherwise well. What does this signify? May the patient be a carrier of the virus?

DR. BUTT: Several types of sequelae may follow viral hepatitis, but their exact nature and incidence are not completely clear. The fact that that this patient has continued to have slight but persistent jaundice afer viral hepatitis suggests several things. About seven years ago, Kunkel and his group reported on the natural history of hepatitis in 350 Navy men admitted to the hospital of the Rockefeller Institute. About 83% of these 350 recovered from the acute attack in less than three months. In 60 (17%) of the 350 patients, recovery did not proceed in the usual manner. Of these 60 patients, 47 had a simple relapse with recovery. Two patients had a relapse with a transition to chronic hepatitis without jaundice, four had a chronic hepatitis without jaundice but with persistent sulfobromophthalein sodium (Bromsulfalein) retention, and seven patients had a persistent elevation of the plasma bilirubin values. I assume that the patient whom we are discussing would fall into the group of persons with viral hepatitis who have a persistent hyperbilirubinemia for a period of months or years without any measurable abnormality of liver function. The increase in bilirubin in all such patients, as shown by Kunkel and his associates, was mostly of the indirect type, although no evidence of hemolysis could be found. Cases similar to the one under discussion have also been described by Post and associates.

The question of possible virus carriers is a difficult one to answer. In viral hepatitis A (IH), the virus may be found in large quantities in the stools as well as in the blood. In experimental studies reported by Stokes and his associates, viremia was found for only a short period preceding and during the acute stage of the disease. In most cases, the duration of fecal excretion of the virus is relatively short; some, however, have postulated the fecal carrier state to explain some aspects of the epidemiology of the disease. Stokes and his group have recently reported data on two children with chronic active hepatitis without jaundice who were proved to be fecal carriers. In infectious hepatitis B (SH), the virus apparently is present in the blood but not in the stools. It has been suggested that perhaps 0.2% of the general population may carry hepatitis virus B in their blood. In a few proved carriers, certain lesions have been observed in liver biopsies that suggest that perhaps the hepatitis virus may even play a role in the pathogenesis of certain insidiously developing chronic hepatic diseases.

MODERATOR: Does a previous bout of viral hepatitis materially increase the chances of cirrhosis developing at some later date?

DR. SBOROV: There is a good deal of controversy surrounding the answer to this question. There are those who are positive that no case of cirrhosis results from a previous bout of viral hepatitis, and there are those who tend to be alarmists and state that a high incidence of cirrhosis results from it. A recently published statistical study by Zieve tends to show that there is no significant increase of hepatic cirrhosis among those who have an antecedent bout of viral hepatitis. Likewise, to my knowledge, there is no unequivocal case yet reported where a liver biopsy has been taken showing at first viral hepatitis with a later biopsy showing cirrhosis. Despite Zieve's studies, I am convinced that hepatic cirrhosis develops in a significant but small number, perhaps less than 2%, of all hepatitis patients. It is admittedly an exceedingly difficult task to establish this fact unequivocally by a follow-up study of a large sample of patients having acute viral hepatitis. Yet, if one is in a position where a large number of patients with chronic liver disease are seen, one cannot avoid the impression that in a definite number of these antecedent viral hepatitis is a cause for cirrhosis.

MODERATOR: Is there any evidence that the virus of hepatitis may pass the placental barrier and affect the newborn infant?

DR. JONES: Yes. I think that a few observations have been made that confirm such a hypothesis. Dr. Joseph Stokes of Philadelphia, among others, has reported such a case. Dr. Charles Janeway of Boston recently told me of a woman who in successive pregnancies gave birth to several infants who showed typical viral hepatitis at delivery and who died in utero or after delivery. The mother had had viral hepatitis prior to the initial pregnancy.

MODERATOR: What are the early signs and symptoms of impending hepatic coma? What is fetor hepaticus?

DR. BUTT: Essentially, hepatic coma is a disorder of consciousness that eventually leads to what appears to be a deep sleep. One of the first symptoms commonly noted is mental confusion, which is usually insidious but sometimes abrupt. The patient may wander aimlessly around the ward, pick at his bedclothing, or show inappropriate behavior. At times hypomania is observed. These symptoms may last several days before the patient lapses into coma. Confusion usually deepens as drowsiness increases. One of the earliest disorders of the motor system stressed by Adams and Foley is a flapping tremor of the outstretched hands. This movement is rapid and arrhythmic. Slowness of speech with difficulty in speaking is a common finding. Frequently, a Babinski reflex may be elicited or an ankle clonus may be noted. Convulsions, either focal or generalized, may also appear early in the course of the disease.

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Fetor hepaticus, so often associated with hepatic coma, is a peculiar odor that can be detected on the breath of certain patients with liver injury. It is not an unpleasant odor unless masked by nonspecific fetor oris. When one is close to a patient who is exhaling through the mouth and who happens to have a marked fetor hepaticus, the odor is somewhat sharp and pungent, but as one draws farther away from the mouth, the breath odor is more dilute and has a sweet, not unpleasant smell. I suppose it could be said to resemble a fruity odor most closely. It has been found recently that the material giving this odor on the breath is also present in the urine not only of patients with liver disease but of all normal persons. Some crude material possessing this odor has been obtained from the urine by chemical means, and its chemical and physical properties suggest that it is a weak base, probably a tertiary amine having five or more carbon atoms. It was found that the odor was very similar to but not identical with that of alpha methyl piperidine. It has been considered by many that the presence of fetor hepaticus was an ominous sign of liver failure and of impending death. Recent studies would tend to show that this is not necessarily true; however, the odor is nearly always present in patients who are in hepatic coma.

MODERATOR: What circumstances precipitate hepatic coma?

DR. JONES: There are several factors that may be enumerated. Acute coma may be precipitated by: (1) continued exposure to a hepatotoxic agent in the face of existing liver damage, which is true when the agent is viral in origin and therefore a continuing insult to the liver, or by continued exposure to a poison such as carbon tetrachloride; (2) inadequate nutrition during the immediate period of hepatic injury and of attempted repair; (3) inadequate control of metabolic requirements; and (4) indirectly, the improper use of sedatives, narcotics, or other drugs. Chronic coma may be precipitated by (1) fatigue, when metabolic demands exceed the capacity of the liver to do metabolic work; (2) intercurrent infection; (3) the use of noxious agents; (4) the use of excessive amounts of protein or nitrogenous material (even ammonium chloride) in patients with a very narrow margin of safety; (5) failure to take an adequate diet over appreciable periods of time with or without the continued use of alcohol; (6) major hemorrhage; and (7) trauma or surgery (necessary or otherwise). Opiates or certain of the barbiturates do not precipitate true hepatic coma, i. e., coma due to hepatic failure. Because these drugs are "detoxified," or conjugated by the liver, ordinary doses are not well tolerated in the presence of existing hepatic insufficiency and may have the effect of overdosage with resulting stupor.

MODERATOR: What new methods of treating hepatic coma seem to have promise?

DR. SBOROV: The literature contains many references to the treatment of hepatic coma with wide varieties of therapy. With each, some success has been achieved. Testimony, however, that no completely satisfactory agent for treatment is at hand is the fact that we are still actively seeking new medicaments for trial. Perhaps one of the greatest difficulties has been the fact that we have as yet no completely objective or biochemical definition of hepatic coma. We can only define it from a clinical point of view as unconsciousness or a state of confusion occurring in the course of hepatic disease. The coma could be due to such widely divergent causes as cerebral anoxia secondary to anemia or even to hypokalemia. Since no two cases are the same, it is most difficult to evaluate therapy. J. M. Walshe has recently administered glutamic acid intravenously to three patients with hepatic coma. With this preparation, he was successful in reversing the coma on five separate occasions, and no failures were encountered. Others in the U. S. have not been as successful.

Intravenously administered glucose, vitamins, nikethamide (Coramine), albumin, antibiotics, methionine, corticotropin (ACTH), and cortisone have also been reported to be successful. My own personal experience has been largely concerned with the use of chlortetracycline (Aureomycin), oxytetracycline (Terramycin), or tetracycline (Tetracyn) administered intravenously. All have been helpful, but there is the impression that the best success has been obtained with chlortetracycline. The use of corticotropin and cortisone, along with the antibiotics, in hepatic coma due to viral hepatitis has been proposed by Ducci. He claims success with these where he feels other measures would have failed. In such cases, heroic measures are indicated and corticosteroids should be used with some expectation of success. Finally, it should be emphasized that close attention to details of fluid and electrolyte balance, infection, anemia, supportive therapy, and general nursing care are probably the most important factors in the treatment of the patient with hepatic coma.

MODERATOR: Do any liver function tests give advance warning of hepatic insufficiency?

DR. JONES: Before attempting to answer this question directly, I wish to emphasize what I consider a much more important point, namely, that no laboratory data can be substituted for careful, continued clinical observation of a patient with liver disease. Impending hepatic insufficiency, in most instances, can be predicted if the physician has paid careful attention to the clinical changes that can readily be observed. For instance, physical signs, such as increasing jaundice, increasing abdominal distention, peripheral edema, the appearance of fresh spider angiomas, or the gradual development of muscular twitchings or of so-called fetor hepaticus, all indicate liver failure in a patient with known liver disease. Such findings are of much greater importance than laboratory tests, which should be utilized primarily as sources of confirmatory evidence. In using laboratory or technical measures to supplement clinical observation, I would suggest the following observations as means of indicating deterioration of hepatic function: (1) an abrupt or steady drop in urine output, for oliguria is always a bad sign in liver disease; (2) an abrupt or steady rise in serum bilirubin; (3) an abrupt rise in the leukocyte count, which suggests the possibility of increasing destruction of liver parenchyma; (4) a steady reduction in serum albumin values; (5) a steady drop in serum cholinesterase; and

(6) an abrupt or steady drop in prothrombin values. Other tests could be mentioned, but I believe the periodic use of the above tests will provide satisfactory evidence to confirm clinical evaluation of hepatic sufficiency.

MODERATOR: Perhaps the most discouraging feature in the treatment of patients with chronic hepatic disease is the tendency to profuse gastrointestinal hemorrhage. May we hear some discussion on the various causes and methods of treatment?

DR. KARK: In patients known to have cirrhosis, acute gastrointestinal hemorrhage occurs most often from a ruptured esophageal varix, but bleeding from erosive hemorrhagic gastritis, duodenal ulceration, or mucosal rupture at the cardiac orifice (Weiss-Mallory syndrome) are not uncommon complications of this disease. Diagnosis and management of gastrointestinal bleeding requires the services of a team, and, therefore, the patient with cirrhosis should be moved to the hospital without delay when bleeding from an esophageal varix is suspected. Control of bleeding requires the integrated activity of an internist, surgeon, clinical pathologist, and radiologist; at times the services of an esophagoscopist may be needed. In cirrhosis, the acute loss of even small amounts of blood is hazardous and is often followed by hepatic coma, oliguria, and acute renal necrosis (lower nephron nephrosis). It is therefore imperative to begin massive transfusions of blood as soon as possible. At the time when blood is taken from the cirrhotic patient for "cross matching" prior to transfusion, enough should be collected for baseline studies that are used to guide therapy. One should record the nonprotein nitrogen content of the blood, the carbon dioxide combining power, and the serum electrolytes and should check the coagulating properties of the blood. Capillary fragility tests should also be done as soon as possible. If the diagnosis of cirrhosis is not established, the sulfobromophthalein test should be made or serum cholinesterase levels should be measured without delay. While waiting for the blood to arrive, a Patton tube is passed, and the patient is given intramuscular injections of vitamin K, B-complex vitamins, and ascorbic acid. An infusion of hypertonic glucose with added vitamins is started. If possible, a plastic catheter should be introduced into a vein for this infusion, since the patient with cirrhosis who is bleeding needs a high caloric intake, which may have to be given for many days by parenteral means.

Proper use of the Patton tube is the crux of therapy in controlling hemorrhage. The thoroughly lubricated, multiple lumen, soft rubber tube with attached balloons is passed into the stomach. When it is in position (as shown by a film taken with a portable x-ray machine), the balloons are inflated to compress the varix. Gentle traction is maintained by tying the oral end of the tube to a cord that passes over pulleys and is attached to a small weight hanging at the foot of the bed. This prevents displacement of the balloons by peristalsis. The stomach and its contents are gently washed with lukewarm water (not saline or bicarbonate solution) until it is clear of blood, when the lavage is stopped. Fifteen and 30 minutes later, gentle suction is applied to the tube. If blood is drawn back, this indicates further bleeding that may be interpreted as bleeding from the stomach or duodenum provided the inflated Patton tube is known to be in the correct position.

If bleeding stops, the Patton tube is deflated and left in place for some hours. If bleeding starts again, it is reinflated. Alternation of inflation and deflation is carried out until it is considered safe to remove the tube. There are reports in the literature of pressure necrosis following the use of balloon tamponade of the esophagus. It is therefore wise to deflate the balloon after 24 hours' use. If bleeding gets out of hand, one is tempted to control it by operation, but, unfortunately, surgical intervention is attended by a high mortality rate and is not often successful. The esophagoscopist can sometimes treat the bleeding area with fibrin foam soaked in thrombin. During and after the period of bleeding, attention must be directed toward maintaining adequate fluid and caloric intake by both oral and parenteral means.

MODERATOR: Under what circumstances would you advise a patient with esophageal varices to have shunt surgery performed?

DR. JONES: Recognition of varices depends on suspicion of their existence and can be shown by either roentgenography or esophagoscopy. At the present time, I would limit shunt surgery for portal hypertension with esophageal varices to those patients in whom major hemorrage has occurred or to the much less common situation in which serious anemia is due to a moderate but continuous oozing of blood from the upper digestive tract. In the latter case, bleeding may be from varices in the esophagus or stomach or from a congested gastrointestinal mucosa.

I have had the opportunity of working closely with Dr. Robert Linton over the past eight years in the treatment of patients with esophageal varices. With adequate preoperative preparation, excellent anesthesia, use of fresh blood as needed during the operation, and meticulous postoperative care as aids to extremely skillful surgical technique, the mortality rate has been reduced to somewhere in the vicinity of 5%. Nevertheless, the procedure is a formidable one, and, unless all of the above measures are carefully observed, operative mortality rates can be much greater. It is possible that in some cases a prophylactic shunt operation is justifiable, but at present I believe that such a decision should be made only after prolonged observation and careful thought on the part of the surgeon and the physician who understand the details of evaluating and managing serious chronic liver disease. This is a team job. Although the risk is less in those patients with portal hypertension secondary to extrahepatic portal or splenic vein block, I believe that prophylactic shunt surgery in such instances is also contraindicated.

As for contraindications to shunt surgery in those patients with bleeding from esophageal varices, I would suggest the following criteria. Operation is contraindicated in patients with ascites who do not respond to good medical management; in patients with more than minimal degrees of jaundice; in patients with clinical evidence of an active, rapidly progressing degenerative process in the liver; in patients with a marked reduction in serum albumin (less than 2 gm. per 100 cc. or possibly a fixed

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level of less than 2.5 gm. per 100 cc.), and in patients with a very marked reduction in prothrombin values (less than 30% of normal, measured as prothrombin time) that fails to respond to vitamin K therapy. If these contraindications do not exist, I would advise proper shunt surgery if bleeding is not due to an associated ulcer, hiatus hernia, marked diffuse gastritis, or other demonstrated causes in association with proved esophageal varices. It goes without saying that shunt surgery should be deferred during a period of active major bleeding if possible. Here surgical ligation of the varices may be an immediate lifesaving procedure. The choice of shunt procedure is still a matter of some controversy. In those cases where the spleen is extremely large, with a correspondingly large splenic vein, it is probable that a splenorenal shunt is preferable to portocaval shunt.

MODERATOR: A shunt operation presumably reduces portal blood flow. What effect does this reduction have on the function of the liver?

DR. SBOROV: In those cases where hepatic blood flow has been measured in humans before and after an end-to-side portocaval anastomosis, a reduction has been noted. This difference is presumably due to the blood contributed through the portal system. Actually, in the type of patient selected for a portocaval shunting operation, most, if not all, of the portal blood is already diverted from the liver to collateral channels. It is not surprising, therefore, that very little change is seen in liver functional status after surgery. In the immediate postoperative period, one sees worsening of liver function, which is probably due to the trauma of the surgery and to the anesthesia. In most instances, liver function will return to the preoperative level within one week. Despite careful studies in 20 patients made before and after a portocaval shunt, no deleterious effects were noted on liver function or on the general metabolism, resulting from the shunting of the blood away from the liver. On the contrary, in a few patients in whom manifestations of hypersplenism, such as hemolytic anemia and leukopenia, were present prior to surgery, there was a reversal to normal values after the operation, with a reduction in the size of the spleen.

300 Homer Ave. (Dr. Snell).

The Sphygmomanometer.—In hypertension the sphygmomanometer has been as much an instrument of evil as it has been of good. So many patients continually ask the doctor "what is my pressure today?", and become influenced psychologically by the figures they know or suspect. Taking the blood pressure is therefore a measure which may have a bad effect on the morale of these cases. The use of the syhygmomanometer is largely limited to two practical points: (1) an intelligent estimation of the extent of the nervous factor by noting a disproportionate increase in the systolic blood pressure; (2) in judging the absence, the presence, or the progress of real hypertension by noting any significant increase in the diastolic pressure. Finally, both in diagnosis and in prognosis, the sphygmomanometer is secondary to the combined information available from the ophthalmoscope, the x-ray screen, and the electrocardiograph, for the state of the retinal vessels and the size and condition of the heart are, in hypertension, of greater importance, in diagnosis and in prognosis, than the arbitrary blood-pressure figure considered by itself.—G. Bourne, M.D., The Diagnosis and Management of Hypertension, *The Practitioner*, February, 1955.

COUNCIL ON PHYSICAL MEDICINE AND REHABILITATION

REPORT OF THE COUNCIL

The Council on Physical Medicine and Rehabilitation has authorized publication of the following article.

RALPH E. DE FOREST, M.D., *Secretary.*

AN APPRECIATION

The Council on Physical Medicine and Rehabilitation expresses its gratitude and appreciation for the services of the following consultants, whose assistance in carrying out the work of the Council has been given so freely during 1954: Drs. David I. Abramson, Albert H. Andrews Jr., Hanford L. Auten, Thomas L. Ball, Robert W. Benson, William Bierman, Harry D. Bouman, Ben L. Boynton, Raymond Carhart, Mrs. Eva Thompson Carson, Drs. Gusta Davidsohn, H. G. Davis Jr., David G. Dickenson, Theodore E. Friedemann, Theodore C. Galloway, Aram Glorig, Stacy R. Guild, F. A. Hellebrandt, Ira Hirsh, Howard P. House, V. J. Jacey, Richard P. Jahn, M. B. Jarman, Carl A. Johnson, Mary Karp, Irvin Kerlan, Burton C. Kilbourne, Col. J. H. King Jr., Drs. Edward M. Krusen Jr., Edward H. Lambert, James E. Lebensohn, Justus Lehmann, Kenneth E. Lemmer, Edward M. Latin, Walter S. McClellan, C. O. Molander, Alvah L. Newcomb, Louis B. Newman, Benjamin H. Orndoff, Magnus Peterson, Donald M. Pillsbury, James W. Rae, Jr., Arthur A. Rodriquez, Max S. Sadove, Oscar A. Sander, D. E. Sanders, Martin H. Seifert, Euclid M. Smith, Albert Vanderkloot, and Ralph E. Worden.

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AMINO ACID METABOLISM AND MENTAL DEFICIENCY

Phenylpyruvic oligophrenia is an inherited disease characterized clinically by mental deficiency and the presence of phenylpyruvic acid in the urine. The phenylketonuria is a manifestation of an inborn error in the metabolism of phenylalanine.[1] In normal persons this amino acid is almost entirely converted to tyrosine, a small amount only being converted to phenylpyruvic acid and phenyllactic acid. In phenylpyruvic oligophrenia, however, the conversion to tyrosine is largely blocked and the main metabolic pathway is by way of phenylpyruvic acid. This latter conversion occurs in the kidney and is apparently a slow process, since high levels of phenylalanine are reached in the plasma and cerebrospinal fluid.

It has been suggested that the mental defect in phenylpyruvic oligophrenia is due to intoxication by the accumulated phenylalanine or by an unidentified metabolite. Support for this viewpoint comes from recent reports from England of improved mental status in four patients with phenylpyruvic oligophrenia placed on a diet low in phenylalanine.[2] To accomplish this, the bulk of the nitrogen intake was supplied by a specially prepared amino acid mixture. An acid hydrolysate of casein was passed through charcoal to remove phenylalanine, tyrosine, and tryptophane. Tyrosine and tryptophane were then added to the hydrolysate, as were the necessary vitamins and trace minerals. Orange juice, glucose, protein-free wheat starch, and vegetable oleomargarine served as the source of carbohydrates and fats. Patients receiving this phenylalanine-free diet for 2 to 10 days showed no phenylpyruvic acid in the urine and developed apathy and weight loss due to the lack of the essential amino acid. Milk was then added as a source of phenylalanine, the amount given being slightly less than that causing phenylpyruvic acid to appear in the urine. On such a diet, patients gained weight and maintained normal hemoglobin values.

Subjective evidence of mental improvement was noted in all patients, and, in three, objective evidence of improvement was obtained by means of psychometric studies made before and at intervals after starting the diet. While difficulties inherent in such studies make it unwise to draw any but very tentative conclusions from these preliminary findings, they do suggest the possibility of ameliorating a condition estimated to occur in 0.5 to 1.5% of institutionalized defective persons. However, as Woolf and his associates emphasize, if the mental status of these persons can be improved by biochemical means, it is highly desirable to diagnose the conditions early before irreversible deterioration has set in. Fortunately, a simple urine test for phenylpyruvic acid is available, and it has been suggested that this test be applied to every baby in whom there is any suspicion of mental retardation or, alternately, that it be used routinely on all newborn infants.[3] Further studies along the line initiated by the British investigators will be awaited with interest.

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ATOMIC POWER FOR INDUSTRY

The recent Congress on Industrial Health provided an outstanding example of perfect timing of a medical meeting to meet a new and important need affecting the public welfare. The Atomic Energy Act of 1954 removed the legal barriers to private construction and ownership of atomic fuel reactors. On January 9, 1955, the Atomic Energy Commission announced plans to help private industry develop and operate experimental atomic power plants and called for early proposals. On January 25 and 26 several sessions of the 15th Congress on Industrial Health were devoted to the inherent health and safety problems involved in these operations.

One of the basic requirements for private industrial development is the competence and responsibility of the private interest. Implicit in such competence and responsibility are the all-important elements of health and safety protection not only for the workers in the plants but also for the general public in large adjacent areas. The avowed desire on the part of the Atomic Energy Commission to be helpful in eliminating roadblocks to the constructive peaceful uses of atoms was exemplified by programs arranged by the division of biology and medicine, Atomic Energy Commission, in cooperation with the Council on Industrial Health of the American Medical Association. Although the subject is not yet one of general concern to all physicians, the meetings attracted nearly 100 outstanding industrial physicians and industrial hygienists.

The panel of experts from the Atomic Energy Commission, U. S. Public Health Service, Canadian Atomic Energy Project at Chalk River, Canada, and the Hanford Works presented much concrete information on the hazards within the plant and in the community under normal operating conditions and in the event of accident. As the cloaks of secrecy are removed from these new and mysterious chemicals and processes, one learns of atomic power reactors of different types, some being considered so safe from hazard of serious accident that they are suitable for use near areas of high population density. However, it is essential that well-organized disaster plans be ready before disaster occurs, and it therefore is important that all physicians in an atomic reactor area be well informed on the subject. Working with a few known facts

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and many unknown, the Atomic Energy Commission has accomplished a phenomenal radiation safety record. Since the Atomic Energy Commission took over in 1947, there have been no deaths from radiation injury. In that time at Atomic Energy Commission laboratories and production plants there were only six cases of radiation injury—none since 1952—with all the injured later able to return to their jobs. This is in marked contrast to the list of catastrophes that have punctuated the development of many other technical advances. It is indeed a tribute to the combined efforts of the physician, the health physicist, and the industrial hygienist. That there is ample room for the safety engineer on the team of preventionists is illustrated by the fact that the reactor accident episode at the Chalk River project in Canada was brought under control without radiation damage to personnel, but several workers did manage to suffer a few old-fashioned accidental injuries at the time.

Doubtless, we are witnessing the dawn of a new era, and it is heartening to learn that elements of such great destructive force can be harnessed for the production of power and energy. Their value to medicine already has been demonstrated in improvements in the diagnosis of disease and in the treatment of the sick. The breadth of the problem and the scope of the planning by all interested parties were clearly revealed in the papers and discussions at the congress in January. Some of the papers will appear in the *A. M. A. Archives of Industrial Health*, and others of more general interest will appear in THE JOURNAL.

RESTRICTIVE DIETS

Although a restrictive diet is often an aid to treatment for disease, it is almost impossible for a patient to obtain exact amounts of specified foods daily over a prolonged period. Dietary restrictions for an acute emergency lasting only a few days, such as diabetic acidosis or a gastrointestinal upset, are easily tolerated, but if dietary restriction becomes a part of the treatment of a chronic disease numerous difficulties must be met. Because many physicians who prescribe such a diet do not appreciate this fact Rittelmeyer[1] urges the physician never to prescribe a restrictive diet unless he has first tried it himself, and he quotes Dr. Irvine Page as saying that after placing himself on a low fat diet his blood lipids dropped (an expected but not necessarily beneficial change) but that also there was an impairment of his disposition and a marked constriction of his circle of friends. Fortunately these changes were reversible. The chief difficulty with most restrictive diets is that they are monotonous and do not satisfy the patient's appetite.

Rittelmeyer suggests that after deciding what would be an ideal diet for a given patient the physician should then determine what dietary restrictions it is humanly and economically possible for the patient to follow. In order to get the patient's full cooperation the physician must prescribe a diet that is palatable, satisfying in quantity and quality, productive of adequate bodily energy, and balanced. In addition it is desirable that the diet be simple and flexible as regards items that can be substituted from day to day. Although it is difficult to meet all these requirements, especially that having to do with quantity, Rittelmeyer gives specific helpful suggestions regarding diabetic, low sodium, low calory, and bland diets and warns physicians not to expect a patient to radically change his dietary habits overnight. A gradual working toward the ideal diet will accomplish more lasting results. To be effective a diet must be followed, and to be followed it must be acceptable.

When one is treating a person with diabetes the objective is to provide enough calories to keep the patient well and strong but not enough to allow a gain in weight. Diabetes can be controlled adequately with a liberal diet with adjusted doses of insulin, but the patient should avoid candy, syrup, cakes, soft drinks, and the like, because sugar in this form adds nothing in the way of essential nutrients and unbalances the diet. If the patient craves sweets he can use artificial sweetening agents. A liberal diet with the emphasis on balance rather than on restriction or calculation is a great boon to the patient's peace of mind, according to John.[2]

A loss of sodium can be induced by decreasing a patient's sodium intake to about 1.5 gm. a day or by increasing his elimination of this element. Because sodium retention causes edema in patients with cardiovascular disease such a diet can be used for a few days to reduce edema.[3] It must be remembered, however, that in addition to sodium chloride a patient may get sodium in the form of the monoglutamate, bicarbonate, acid phosphate, or salicylate and that sodium is present in Sippy powders, triple bromides, and many headache remedies. It is almost impossible to maintain a patient on a truly low sodium diet outside of a hospital with a special metabolic service, and in patients with renal damage there is the danger that hypochloremia and uremia may develop as a result of the restriction.[4] In the treatment for essential hypertension, which in most patients runs a benign course, no consistently good results have ever been reported from the use of a low sodium diet. It is perhaps the most difficult of all diets for both the patient and his cook, and many patients prefer to take the consequences of their disease rather than adhere to it. If in addition it is therapeutically worthless, as many contend, it should certainly fall into disrepute as it has more than once since the turn of the century.

Restrictive diets have been used in the treatment of obesity, gout, skin diseases, gallbladder diseases, nephritis, polycythemia vera, gastrointestinal diseases, and other conditions. If a psychosomatic element is present a difficult or unattractive diet may aggravate the emotional disturbance and thereby defeat the therapeutic regimen. If a restrictive diet must be prescribed, it is not enough to give the patient a list of foods he must avoid. He must be given verbal and explicit instructions regarding the method of preparation of the foods permitted, suggested menus, and instructions to be applied when eating away from home. Unless the physician is prepared to do this he would be wise to spare the patient the mental hazards of a restrictive diet.

1. Rittelmeyer, L. F., Jr.: Common Sense in Diets, GP **10**: 35-39 (Oct.) 1954.
2. John, H. J.: Further Observations on the Use of Liberalized Diets in the Treatment of Diabetes, Ann. Int. Med. **35**: 1318-1328 (Dec.) 1951.
3. Lefkovits, A. M.: Dietetic Aspects of Cardiovascular Diseases, Am. Pract. **2**: 1052-1056 (Dec.) 1951.
4. Practical Therapeutics: Salt-free and Rice Diets for Hypertension, GP **2**: 71-73 (Aug.) 1950.

ORGANIZATION SECTION

FEDERAL MEDICAL LEGISLATION

Eighth Installment, First Session, 84th Congress

Medical Expense Deductions

Congressman Williams (D., Miss.), in H. R. 3492 proposes "to remove the 3 percent limitation on the amount of medical and dental expenses which may be deducted from gross income" for income tax purposes so that any medical expense, however small, could be deducted. Congressman Curtis (R., Mo.) proposes, in H. R. 3893, to repeal for taxable years beginning after Dec. 31, 1954, the maximum limitation on allowances for deduction for medical expenses in determining the amount for income tax. Congressman Bolton (R., Ohio) proposes, in H. R. 3911, to allow the deduction of all medical and drug costs not compensated for by insurance or otherwise for income tax purposes. He also proposes to allow credit on gross income for amounts paid for "accident or health insurance or as subscription charges or other payments to prepayment cooperative or other health or medical service plans." The above bills were referred to the Committee on Ways and Means.

Ninth Installment, First Session, 84th Congress

Loans to Nonprofit Health Associations

Senator Humphrey (D., Minn.), in S. 1076, would assist voluntary nonprofit associations offering prepaid health service programs to secure necessary facilities and equipment through long-term, interest-bearing government loans. This measure is essentially identical to H. R. 399 by Wolverton (R., N. J.) except that the rate of interest in the Humphrey proposal is set at 2%, whereas the Wolverton bill prescribes the interest as the going rate that the federal government pays in borrowing for comparable periods. At the present time it is higher than 2%. The Wolverton bill was previously reported in THE JOURNAL, Feb. 26, 1955, page 731. Senator Humphrey and Congressman Wolverton had similar bills in the 83rd Congress. S. 1076 was referred to the Committee on Labor and Public Welfare.

Constitutional Amendment on States Rights

Congressman Whitten (D., Miss.), in H. J. Res. 223, would amend the Constitution to provide that: "There shall be no interference with or limitation upon the power of any State to regulate health, morals, education, marriage, and good order in the State; and exclusive jurisdiction thereof is reserved to the States." This bill was referred to the Committee on the Judiciary.

Narcotics

Senator Daniel (D., Texas) and Senator Kilgore (D., W. Va.) have introduced essentially identical measures in S. Res. 60 and S. Res. 67, respectively, that would authorize the Senate Judiciary Committee to study "(1) the extent, cause, and effect of unlawful uses of narcotics and marihuana in the United States, (2) the adequacy, administration, operation, and enforcement of existing laws relating hereto, and (3) the additions and changes which should be made in the laws and enforcement procedures to prevent illicit possession, sale, transportation, and use of narcotic drugs, and marihuana and to combat the increasing narcotic addiction in the United States." They are similar to H. Res. 87 by Thornberry (D., Texas) previously reported in THE JOURNAL, April 2, page 1221, except the House measure would create an investigative committee of House members instead of using the Judiciary or subcommittee thereof, as is proposed by Senators Daniel and Kilgore. The Kilgore measure was referred to the Committee on Rules and Administration, and the Daniel measure was referred to the Committee on the Judiciary.

The summary of federal legislation was prepared by the Washington Office of the American Medical Association.

Congressman McVey (R., Ill.), in H. J. Res. 188, Congressman Hiestand (R., Calif.), in H. J. Res. 197, Congressman Davidson (D., N. Y.), in H. J. Res. 225, and Congressman Young (R., Nev.), in H. R. 4016, have introduced essentially identical measures with S. J. Res. 19 by Senator Payne (R., Maine) for himself and 44 others, previously reported. These measures would "(a) reorganize the Bureau of Narcotics and transfer all its functions from the Treasury Department to the Justice Department; (b) increase penalties for repeated violators and for sales to minors; (c) authorize expansion of treatment facilities; and (d) intensify and extend research activities." The new measures were referred to the Committee on Ways and Means.

Transfer of United Nations Narcotics Division to Geneva.— Senators Payne (R., Maine), Daniel (D., Texas), Kuchel (R., Calif.), Mansfield (D., Mont.), and Wiley (R., Wis.), in S. Res. 87, strongly oppose the transfer of the Narcotics Division of the United Nations from New York City to Geneva, Switzerland. This bill was referred to the Committee on Foreign Relations.

Mental Health

In a measure introduced by Senators Hill (D., Ala.), Young (R., N. D.), Chavez (D., N. Mex.), Ives (R., N. Y.), Murray (D., Mont.), Neely (D., W. Va.), Douglas (D., Ill.), Lehman (D., N. Y.), Kennedy (D., Mass.), McNamara (D., Mich.), Clements (D., Ky.), Hennings (D., Mo.), Humphrey (D., Minn.), Jackson (D., Wash.), Kefauver (D., Tenn.), Kilgore (D., W. Va.), Langer (R., N. D.), Long (D., La.), Magnuson (D., Wash.), Mansfield (D., Mont.), Monroney (D., Okla.), Morse (D., Ore.), Neuberger (D., Ore.), Pastore (D., R. I.), Payne (R., Maine), Potter (R., Mich.), Scott (D., N. C.), Smathers (D., Fla.), Sparkman (D., Ala.), and Symington (D., Mo.), S. J. Res. 46, and in H. J. Res. 230, by Congressman Priest (D., Tenn.), an identical measure, the expenditure of one and one-quarter million dollars would be authorized over a period of three years to finance a study of mental health needs and reevaluation of the human and economic problems of mental health. Grants would go to qualified nongovernmental agencies, or commissions, composed of leading authorities in national medical and other professional associations. These grants would supplement, not replace, other funds from private sources. In the Senate this measure was referred to the Committee on Labor and Public Welfare, and in the House, to the Committee on Interstate and Foreign Commerce. Following hearings before the Interstate and Foreign Commerce Committee, Congressman Priest (D., Tenn.), in H. J. Res. 256, and Congressman Springer (R., Ill.), in H. J. Res. 257, introduced a modified version of H. J. Res. 230, which would require that the recipients be responsible for coordinating their efforts and for including "all aspects of the resources, methods, and practices" for "diagnosing, treating, caring for, and rehabilitating the mentally ill." These measures were referred to the Committee on Interstate and Foreign Commerce.

Commission to Study Problems of the Aging

Congressman Allen (R., Calif.), in H. R. 3382, Congressman Sikes (D., Fla.), in H. R. 3704, and Congressman Hosmer (R., Calif.), in H. R. 5095, have introduced identical measures to establish a commission "to assist in defining the problems of the aging and aged segment of the population, and in finding solutions therefor, by providing for an immediate study leading to recommendations for integrated action, particularly with respect to—(a) employment and employability; (b) income maintenance; (c) health and physical care; (d) housing, living arrangements, and family relationship; and (e) effective use of leisure time." The commission would consist of 10 members, 6 of whom would be appointed by the President of the United States, 3 to come from the executive branch of the government, and 3 from private life. Two senators would be appointed to the com-

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mission by the President of the Senate, two members of the House of Representatives would be appointed to the commission by the Speaker of the House. The commission must submit its final report not later than May 31, 1956, and shall cease to exist 30 days after the submission of its final report. These measures were referred to the Committee on Education and Labor and are identical with S. 693 by Senator Potter (R., Mich.) for himself and 54 others, H. R. 3254 by Congressman Laird (R., Wis.), and H. R. 3307 by Derounian (R., N. Y.) and are similar to S. 658 by Senator Ives (R., N. Y.) and H. R. 2825 by Congressman Coudert (R., N. Y.) previously reported in THE JOURNAL, March 26, page 1132.

Assistance to States for Industrial Safety

Senator Smith (R., N. J.), for himself, and Senators Ives (R., N. Y.), Bender (R., Ohio), Thye (R., Minn.), Duff (R., Pa.), Saltonstall (R., Mass.), Case (R., N. J.), and Bush (R., Conn.) have introduced, in S. 1091, a measure designed to "provide for assistance to States in their efforts to promote, establish, and maintain safe workplaces and practices in industry, thereby reducing human suffering and financial loss and increasing production through safeguarding available manpower." This measure would provide for allotments to states to be administered by the Secretary of Labor. The state labor agencies would supervise the state labor plans. There is no mention of the state health agencies or of physicians, but the Labor Department could cooperate with private industry and safety groups. The coal industry is covered in another program (not by the Smith bill). The federal funds would be appropriated on the basis of (1) number of wage earners, (2) special hazards, (3) financial needs of respective states, and (4) such other factors as the Secretary finds relevant. Payments to states for the first two years could not exceed 75% of the expenditures under state plans for the first two years. For the second two years the federal payments could not exceed 66⅔% and thereafter not over 50% of the expenditures under state plans. This bill was referred to the Committee on Labor and Public Welfare. Congressman Bailey (D., W. Va.) has introduced a similar bill, H. R. 4877, except for a slightly different way of figuring the allotment to the states. This measure was referred to the Committee on Education and Labor.

Illness Inventory

Congressman Priest (D., Tenn.), in H. R. 4098, would direct the Surgeon General of the Public Health Service to "study, through sample surveys and other appropriate means, methods of ascertaining the amount and distribution of chronic and other diseases, injuries, and handicapping conditions in the population of the United States in relation to (a) type of disease, injury, or handicapping condition, (b) age, sex, race, and usual occupation, (c) length of time that persons so afflicted are prevented from carrying on their usual occupations or activities, and (d) other relevant factors relating to such persons and their families; (2) determine from these studies the best method of obtaining periodic, reliable estimates of the amount and distribution of chronic diseases, injuries, and handicapping conditions; and (3) report to the Congress, within eighteen months after the date of enactment of this Act, the results of such studies." An appropriation of $200,000 is authorized, and the Surgeon General is directed to request the cooperation of the state health departments and such other state and local agencies as he may find appropriate. He is directed to consult with the nongovernmental associations and experts in planning and carrying out such studies and inventories. This bill was referred to the Committee on Interstate and Foreign Commerce.

Establishment of a Medical Advisory Committee on Alcoholism

Congressman Radwan (R., N. Y.), in H. R. 3937, would establish a medical advisory committee on alcoholism in the Department of Health, Education, and Welfare. This committee would consist of between 15 and 21 members, two-thirds of whom must be physicians. The bill provides that: "It shall be the duty of the Committee—(1) to advise and cooperate with the United States Public Health Service (and particularly with its Mental Hygiene Division) in promoting education on alcoholism throughout the departments and agencies of the Federal Government; (2) to promote education on alcoholism throughout the several States, acting primarily through the state departments of health; (3) to advise on the establishment of clinics for the care of alcoholics; (4) to advise the departments and agencies of the Federal Government on the establishment of facilities for the care of alcoholics at various stages of the disease, and particularly to advise with respect to the different types of medical approach which are required for rehabilitation at the different stages; (5) to advise educational bodies on medical matters connected with alcoholism, and to provide material for inclusion in the syllabus of the various educational institutions; and (6) to provide advice, from a medical, educational, community, and sociological point of view, regarding the care, treatment, and prevention of alcoholism throughout the country." This measure was referred to the Committee on Interstate and Foreign Commerce.

Tenth Installment, First Session, 84th Congress

Neuropsychiatric Treatment for Veterans

Congressman Ray (R., N. Y.), by request, has introduced, in H. R. 4235, a measure that provides that "the Administrator of Veterans' Affairs shall furnish at Veterans' Administration hospitals or by contract with State hospitals to all persons discharged or released from active service, under conditions other than dishonorable, who have service-connected disabilities, necessary hospital and medical care for any neuropsychiatric ailments which they have, whether or not service-connected," thus removing the need for the veteran to go outside of his home state for treatment. This measure was referred to the Committee on Veterans' Affairs.

Federal Aid to Medical Education

Senator Hill (D., Ala.), for himself, and Senators Thye (R., Minn.), Douglas (D., Ill.), Duff (R., Pa.), Kennedy (D., Mass.), Murray (D., Mont.), Neely (D., W. Va.), Lehman (D., N. Y.), McNamara (D., Mich.), Humphrey (D., Minn.), Kefauver (D., Tenn.), Langer (R., N. D.), and Jackson (D., Wash.), in S. 1323, Congressman Priest (D., Tenn.), in H. R. 4743, and Congressman Fogarty (R., R. I.), in H. R. 4667, would establish a five year program of federal aid for construction, expansion, and maintenance of medical schools, with an authorization of 50 million dollars per year. New schools would receive two-thirds of the construction costs, as would existing schools, if they increased their freshman enrollment 5%. Otherwise, the federal share could not exceed 50%. A school could receive up to 3 million dollars for construction during the five years, in addition to $25,000 for planning. Twenty per cent of any new construction grant might, at the discretion of the applicant, be allocated for permanent endowment for the cost of maintenance of the new facility. Cost of construction would not include the cost of acquisition of land. Grants would be administrated by the Surgeon General, who would be chairman of a council of 13; 6 of the 12 appointed would have to come from the health fields. The Senate bill was referred to the Committee on Labor and Public Welfare and the House bills to the Committee on Interstate and Foreign Commerce.

Military Credit for Civilian Intern Training

Congressman Lane (D., Mass.), in H. R. 4810, would give credit to active and retired officers of the medical department of the Army for all service performed as civilian interns in Army hospitals on a civilian employee basis in calculating promotion, longevity pay, and retirement. No back pay allowance or other emoluments would be held to accrue for any period prior to the date of the enactment of this act. This measure was referred to the Committee on Armed Services.

Fireworks Bill

Senator Kefauver (D., Tenn.) and Senator Chavez (D., N. Mex.), in S. 1297, would authorize the Federal Trade Commission to determine the standards of safety for all fireworks with national regulations. Violators (importers and transporters) would be subject to $1,000 fine and/or imprisonment not to exceed one year. This measure was referred to the Committee on Interstate and Foreign Commerce.

STATEMENT BY DR. GEORGE F. LULL ON H. R. 2847

April 19, 1955.

Honorable Paul J. Kilday,
Chairman, Subcommittee No. 2,
Committee on Armed Services,
House of Representatives,
Washington 25, D. C.

Dear Mr. Chairman:

Please permit me to take this opportunity, on behalf of the American Medical Association, to submit for your consideration our views concerning H. R. 2847, 84th Congress, which is currently being studied by your Committee.

As we understand the proposed legislation, it would provide an additional statutory deferment from military training or service, independent of the authorization for deferment at the discretion of the President which is now contained in section 6 of the Universal Military Training and Service Act, as amended. As a prerequisite to utilization of the new statutory deferment, however, the registrant must first assume full military status by enlisting or being inducted into the military service. We believe it is fair to assume that the administrative procedures required to adequately process the application for deferment would consume most of the 89 day maximum period which the bill would permit for such action. The result would be a significant interruption in the activities found by the Scientific Specialists Board to be more valuable to the national interest than military service or training.

We support the underlying principle of H. R. 2847 as we understand it. We have consistently urged that the national interest requires an early identification of the registrant whose training or aptitude indicates that he can best contribute to the nation as a trained professional man. We have frequently stated our belief that safeguards should be included in selective service or universal military training legislation to prevent any disruption in the education of an adequate number of professional personnel. We see little value in requiring a disruption in training or important scientific activities for a period of three months while the determination is made, however, and recommend to the Committee that provision be made for application for such deferment sufficiently prior to the date of scheduled induction as to avoid the necessity for such interruption.

If it is felt necessary to impress military status upon a deferred individual to insure his continuance in a status eligible for deferment, we suggest that a mechanism be devised which would utilize a special reserve enlistment or appointment, and not involve an initial period of active duty training. In this manner, those selected for deferment would be permitted to continue without interruption the activities for which deferment is being considered. Applicants denied deferment could, therefore, be made available for basic training in accordance with the normal induction schedule.

I respectfully request that the foregoing comments on behalf of the American Medical Association be included in and made part of the record of hearings on H. R. 2847, 84th Congress.

Sincerely yours,

GEORGE F. LULL, M.D.
Secretary and General Manager.

NEW PAMPHLET ON MEDICAL EDUCATION

An attractive 12-page pamphlet, entitled "What's up With Our Medical Schools?" is in production by the American Medical Association. The pamphlet discusses four main phases of medical education in which the 80 approved medical schools in the country now are surpassing all previous records. These areas are: (1) medical school enrollments, (2) number of medical school graduates, (3) medical school finances, and (4) medical school facilities. Particularly suitable for distribution in doctors' reception rooms, through schools, and at health fairs, the pamphlet will be available in quantities after July 1 from state medical societies or the A. M. A.'s Public Relations Department.

POSTCONVENTION EUROPEAN TOURS

Doctors and their wives participating in the forthcoming postconvention tours to Europe (see THE JOURNAL, Jan. 8, page 152) will be offered medical meetings and fashion shows during their visits in London, Paris, Zurich, and Rome. While the doctors are attending medical meetings, the wives will witness the style shows. In London, the doctors will attend the outpatient teaching sessions at the National Hospital for Nervous Diseases, which is the teaching hospital of the Institute of Neurology. In Paris, a visit will be made to the New School, the Wax Museum of Saint-Louis, and the Cancer Institute. The dean at the new University Hospital will greet the doctors in Zurich. They will be welcomed, also, by a committee from the Cantonal Medical Association, and a number of English-speaking Zurich doctors will be present to show the visitors around the hospital.

The ladies, meanwhile, in Rome, will see Italy's latest styles at Gattinomi's, Fontana's, or Mingolini-Gugenheim's. In London, the Queen's dressmaker, Norman Hartnell, Ltd., will display the latest fashions, and in Paris the ladies will attend a Christian Dior show or be received by Accueil de Paris at Hotel de Ville. These highlights are in addition to the many features described in the tour folder, which is available at the nearest United Air Lines office. For this folder or to make last-minute reservations, write: A. M. A. Post-Convention Tours, 5959 S. Cicero Ave., Chicago 38, Ill.

"WE, THE MENTALLY ILL" ON TELEVISION

Presented in cooperation with the American Medical Association, "March of Medicine" will originate Sunday, May 15, from St. Elizabeths Hospital in Washington, D. C., and will be shown on 140 stations of the NBC-TV network at 10 p. m. EDT. Hospital patients will enact a television play based on the life of Dorothea Lynde Dix, 19th century American benefactor in the cause of the mentally ill. There will also be a report direct from the first institution Miss Dix was responsible for founding—New Jersey State Hospital in Trenton. Dr. Harold S. Magee, superintendent, will point up the growing problems of overcrowded institutions, lack of trained doctors and attendants, and the need for funds for modern medical care. Another feature of the "March of Medicine" program—to be called "We, the Mentally Ill . . ."—will be a personal report from a patient at Manhattan State Hospital, New York, on her experiences with the new tranquilizing drugs. The scientific viewpoint on these drugs will be given by Dr. Herman C. B. Denber, director of psychiatric research at the hospital. Smith, Kline & French, sponsors of "March of Medicine," have announced that another program will be presented Tuesday, June 7, from the 104th Annual Meeting of the American Medical Association in Atlantic City, N. J.

NEW JERSEY DOCTORS CONTRIBUTE TO AMEF

A treasury grant of $25,000 from the Medical Society of New Jersey will be awarded to the American Medical Education Foundation this year to help support the nation's medical schools. The contribution will be presented to the foundation during the A. M. A.'s 104th Annual Meeting, June 6-10 at Atlantic City. Dr. F. M. Clarke, the state's AMEF chairman, notified the foundation office that the grant was voted by the New Jersey House of Delegates at its annual convention in April at Trenton. Total contributions to the AMEF so far in 1955 exceed $303,685 from 4,225 donors. This figure includes also a grant of $100,000 from the A. M. A.

BIBLIOGRAPHY ON PROBLEMS OF AGING

An annotated bibliography on medical services relating to aging has been prepared by the Committee on Indigent Care of the A. M. A.'s Council on Medical Service. This up-to-date listing contains references to books, pamphlets, and magazine articles, some of which are available to physicians on a loan basis from the Council. The material has been classified according to the various aspects of the aging problem—medical, socioeconomic, recreation, housing, and general. Copies are available from the Council.

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MEDICAL NEWS

CALIFORNIA

Clifford Sweet Lectureship.—Dr. Alexis F. Hartmann, professor of pediatrics, Washington University School of Medicine, St. Louis, will be visiting lecturer for the fourth annual Clifford Sweet Lectureship, May 18-20, at Children's Hospital of the East Bay in Oakland, honoring Dr. Sweet, emeritus chief of medicine, and for 30 years chief of the department of medicine. Beginning at 10 a. m. Wednesday, the program will continue with both morning and afternoon meetings at the hospital and will culminate with the Sweet Lecture Friday evening after a banquet at the Women's City Club in Berkeley, where Dr. Hartmann will discuss "Disturbances of Fluid and Mineral Balance." All sessions will be open to physicians. Reservations for the Friday night banquet and lecture may be made through Children's Hospital of the East Bay.

ILLINOIS

Television Panel on Cancer.—On May 15, 4-4:30 p. m., C. D. T., over Hannibal-Quincy HKQA-TV Channel 7 (316,000 watts), the Adams County Medical Society in cooperation with the Adams County chapter of the American Cancer Society will conduct a panel on cancer. Questions concerning cancer may be telephoned during the telecast (Quincy, BA2-6200) or mailed previously to the Adams County Medical Society, P. O. Box 110, Quincy.

Meeting of Anesthesiologists.—The Illinois Society of Anesthesiologists will hold its annual meeting, May 15, at the Sherman Hotel, Chicago. Physicians, including interns and residents, are cordially invited to the following program:

Induced Hypotension (After Ten Years Experience), John Gillies, Edinburgh, Scotland.
Fundamentals of Nitrous Oxide Anesthesia, Kenneth C. McCarthy, Toledo, Ohio.
Responsibilities of the Anesthesiologist to the Staff and to the Hospital, Harold L. Harris, Evanston.
Visual Surgery During Hypothermic Anesthesia, Robert W. Virtue, Denver.

Clinical Meeting for Surgeons.—The Illinois Academy of Surgery will conduct a clinical meeting at Cook County Hospital, Chicago, May 16. Starting at 8 a. m., the following operative clinics by Chicago physicians will be presented:

Karl A. Meyer, Surgery of the Stomach.
Raymond W. McNealy, Surgery of the Neck.
Peter A. Rosi, Surgery of the Colon.
James J. Callahan, Fractures and Trauma.
Carlo S. Scuderi, Orthopedic Surgery.
George W. Holmes, Thoracic Surgery.
Manuel E. Lichtenstein, Surgery of the Biliary System.
Louis P. River, Surgery of the Breast.
Arkell M. Vaughn, Vagotomy and Gastroenterostomy.
Leon J. Aries, Surgery of the Thyroid.
Samuel J. Fogelson, Gastric Surgery.
William M. McMillan, Recurrent Direct Inguinal Hernia Repair with Osteoperiosteal Flap.
Richard H. Lawler, Proctosigmoidectomy with Sphincter Control.
Egbert H. Fell, Surgery of the Heart.
Robert F. Dillon, Cardiac Catheterization.
John L. Keeley, Pediatric Surgery.

State Medical Meeting in Chicago.—The 115th annual meeting of the Illinois State Medical Society will be held at the Hotel Sherman, Chicago, May 17-20, under the presidency of Dr. Arkell M. Vaughn, Chicago. Presentations by out-of-state speakers include:

Dangers of Delay, William B. Thompson, Los Angeles.
Safety in Modern Anaesthetic Practice, John Gillies, Edinburgh, Scotland.
Tumors of the Thyroid, George Crile Jr., Cleveland.
Routine Radiographic Examinations in Diagnosis of Cardiac Anomalies and Diseases, Wendell G. Scott, St. Louis.
Advances in Drug Therapy, Robert L. Grissom, Omaha.
Vascular Changes in the Eye in Hypertension and Other Pathologic Conditions, Hermann M. Burian, Iowa City.

Physicians are invited to send to this department items of news of general interest, for example, those relating to society activities, new hospitals, education, and public health. Programs should be received at least three weeks before the date of meeting.

Wednesday at 10:30 a. m. the section on pediatrics will present the following panel on immunity and antibiotics:

Natural and Acquired Immunity, Clifford G. Grulee Jr., New Orleans.
Artificial Immunity, Winston H. Tucker, Evanston.
Antibiotics as Related to Immunity, Mark H. Lepper, Chicago.

At the same time the section on surgery will have a panel on gastrointestinal bleeding, moderated by Dr. Howard P. Sloan, Bloomington. Wednesday afternoon after the presidential address by Dr. Vaughn, the Oration in Surgery, "The Present Day Concepts in the Treatment of Venous Thrombosis," will be presented at 1:50 p. m. by Dr. Alton Ochsner, New Orleans. It will be followed by the Oration in Medicine, "Virus Problems in Medicine," by Dr. Thomas Francis Jr., Ann Arbor, Mich. At 3:15 p. m. Dr. Julius H. Hess, Chicago, will serve as moderator for the following panel on poliomyelitis:

Poliomyelitis Vaccine, Thomas Francis Jr., Ann Arbor, Mich.
Status of Irradiated Poliomyelitis Vaccine, Howard J. Shaughnessy, Ph.D., and Albert M. Wolf, Chicago.
The Practicing Physician's Role in the Control of Poliomyelitis, Leonard M. Schuman, Minneapolis.
Practical Aspects of Diagnosis and Care of Poliomyelitis, Clifford G. Grulee Jr., New Orleans.

The section on allergy will present a panel discussion, "Symptomatic Therapy of Bronchial Asthma," Thursday at 9 a. m., with Dr. Milton M. Mosko, Chicago, as moderator. At 11 a. m. Dr. Adolph Rostenberg Jr., Chicago, will moderate a symposium, "Reactions to Drugs," in which he will participate with Drs. Leonard H. Harris, Peoria, Norman B. Roberg, Chicago, and Paul L. Wermer, Chicago, Secretary, Committee on Research, American Medical Association. A panel on renal failure will open the meeting of the section on medicine Thursday at 9 a. m., and a panel on school health and the family physician will be presented at the same time by the section on preventive medicine and public health. The section on dermatology has scheduled a panel, "Management of Superficial Fungous Infections," Thursday at 11 a. m. Members of the panel will consist of the chairmen of the departments of dermatology from all the medical schools in Chicago. The section will close its session Thursday, 3 p. m., with a panel discussion, "The Stuffed-Up Nose," moderated by Dr. Max Samter, Chicago. The public relations dinner will be held Tuesday evening and the annual dinner, Wednesday. The speaker will be Clarence E. Manion, J.D., J.U.D., former dean of the law school of Notre Dame University, South Bend, Ind. The woman's auxiliary will hold its meetings concurrently. Its program includes presentation of a film, "School Health in Action," with discussion by Dr. John Lester Reichert, Chicago, and a panel, "Facts and Fallacies About the Legislative Program of the Illinois State Medical Society," in which Mr. C. Joseph Stetler, Chicago, Director, Law Department, American Medical Association, will participate. On Tuesday a luncheon and fashion show honoring the past presidents will be held at the Sarah Siddon Walk, Ambassador East Hotel. At the luncheon Thursday, 1 p. m., Dr. Alphonse McMahon, St. Louis, immediate past president of the Southern Medical Association, will give an address, "The Doctor and the Public."

Chicago

Practitioner Needed at Army Dispensary.—The 5029 ASU U. S. Army Dispensary, Fifth Army Headquarters, announces that a government position is available for a general practitioner on a full-time or part-time basis at the dispensary, 1660 E. Hyde Park Blvd. Contact Captain Walsh, Adjutant, at BUtterfield 8-5800, Ext. 681.

Bacon Lecture.—Dr. Ludwig A. Emge, San Francisco, will deliver the annual Charles Sumner Bacon Lecture at 1 p. m., May 18, at the University of Illinois College of Medicine, 1853 W. Polk St. Dr. Emge, clinical professor emeritus in the department of obstetrics and gynecology at Stanford University School of Medicine, will discuss "Effect of Aging on the Incidence of Survival from Cancer of the Female Reproductive Organs."

Michael Reese Alumni Association.—The annual reunion, May 27, will include morning clinics and lunch at Michael Reese Hospital and a banquet at the Furniture Club, preceded by a cocktail party at 6:30 p. m. Former house staff and present attending staff members are urged to send their reservations at once to Michael Reese Alumni Association, 29th St. and Ellis Ave., Chicago 16.

Meeting on Cardiology.—The Chicago Heart Association invites physicians to a meeting, May 17, 8 p. m., at the Chicago Academy of Sciences, 2001 N. Clark St., at which Dr. Earl A. Zaus, associate professor of medicine, Northwestern University Medical School, will present "Abuses in the Treatment of Congestive Heart Failure." Discussion by Dr. William S. Hoffman, professorial lecturer in medicine, University of Illinois College of Medicine, will be followed by a clinical pathological conference with presentation of a case by Dr. Hans P. Popper, associate professor of pathology, Northwestern University Medical School, and discussion by Dr. Wright R. Adams, chairman, department of medicine, University of Chicago. Open discussion will conclude the program. Arrangements have been made for handling incoming calls for physicians attending. The telephone number is LIncoln 9-0606.

Dr. Letourneau to Direct Hospital Administration Program.—Dr. Charles U. Letourneau, who, since February, 1953, has been an associate director of the program and professorial lecturer in hospital administration at Northwestern University Medical School, was appointed director of the program in hospital administration and associate professor of hospital administration effective April 1. Dr. Malcolm T. MacEachern, founder and present director of the program, will continue his association with the program as professor of hospital administration, with the title of honorary director effective April 1. Since his graduation in June, 1951, Dr. Letourneau has been on the staff of the American Hospital Association as assistant director, secretary of the council on professional practice, and editor of *Trustee*, positions from which he resigned March 31 to accept the full-time appointment at the university. In addition he will have certain hospital and editorial consulting assignments.

IOWA

Personal.—The General Zionist Medical Center, Ramat Gan, Israel, has named its department of urology after Dr. Abraham G. Fleischman, Des Moines. Last summer Dr. Fleischman lectured on the management of urinary lithiasis at Hadassah Hebrew Medical School in Jerusalem and before the Israel Urological Society at Tel Aviv.

Dr. Bierring Honored.—Dr. Walter L. Bierring, Des Moines, was named honorary fellow of the Royal Sanitary Institute of Great Britain, one of 21 Americans ever to receive the award. The citation states that Dr. Bierring was chosen "on the grounds of his distinguished work in connection with sanitary science." The institute corresponds in nature to the American Public Health Association, of which Dr. Bierring was first vice-president in 1953.

Symposium on Cardiac Diseases.—The Iowa Academy of General Practice will present a symposium on diseases of the heart at the Hotel Savery, Des Moines, May 19. Dr. Frank D. McCarthy, Sioux City, president, will serve as moderator for the morning session:

Recent Advances in Heart Physiology, Matthew N. Levy, Albany, N. Y.
Electrocardiography in General Practice, J. Scott Butterworth, New York City.
Indications for Heart Surgery, Dwight E. Harken, Boston.

Questions and panel discussion will precede the luncheon, at which the speaker will be Dr. William B. Hildebrand, Menasha, Wis., president, American Academy of General Practice. Dr. Charles A. Nicoll, Panora, vice-president, Iowa Academy of General Practice, will moderate the following afternoon session:

Bacterial and Inflammatory Diseases, Leo Loewe, New York City.
Degenerative and Metabolic Diseases, Walter S. Priest, Chicago.
Rehabilitation of the Patient with Cardiovascular Disease—An Increasing Community Responsibility, Joseph G. Benton, New York City.

A cocktail reception, 4:30 p. m., will follow questions and panel discussion. Five hours of formal credit will be allowed for this symposium. Wives of physicians are encouraged to attend.

KENTUCKY

"Today's Health" Purchased for Bookmobiles.—As a result of the Kentucky State Medical Association's recent purchase of 100 subscriptions to *Today's Health*, every bookmobile in Kentucky will have copies of the magazine to lend.

Meeting of Surgical Society.—The Kentucky Surgical Society will hold its annual meeting, May 20-21, at the Homestead Hotel, Hot Springs, Va. Members will present the program Friday afternoon. The following scientific program Saturday afternoon will be given by the department of surgery, University of Virginia Hospital, Charlottesville, under the direction of Dr. C. Bruce Morton II:

Surgical Treatment of Interauricular Septal Defect, William H. Muller Jr.
Ureteral Cuff Reimplantation in Treatment of Vesicoureteral Reflux, Hugh Warren.
Direct Surgical Treatment of Arteriosclerotic Obstruction of the Terminal Aorta, Iliac, and Femoral Arteries, William R. Sandusky.
Factors Which Influence Healing Time in Fractures of the Tibia, Esmond D. Vere Nicoll.
Subarachnoid Space Decompression into the Peritoneum, William G. Crutchfield.
Small Fascial Defects at the Umbilicus Causing Severe Abdominal Symptoms, Charles B. Morton.

MASSACHUSETTS

State Medical Meeting in Boston.—The 174th annual meeting of the Massachusetts Medical Society will convene at the Hotel Statler, Boston, May 17-19, under the presidency of Dr. Curtis C. Tripp, New Bedford. The sessions will open at 9 a. m., Tuesday, with "Search," a film on automobile accidents, followed by presentation of "Pulmonary Problems in the Newborn" by Dr. Virginia Apgar, New York City, who will also be guest speaker at the luncheon meeting of the section on anesthesiology Tuesday noon. "Clinical Dividends from Gastrointestinal Radiology" by Dr. Fred Jenner Hodges, Ann Arbor, Mich., will precede the panel discussion, "Sympathectomy in Vascular Disease," at 10:40 a. m. The luncheon meeting of the section on medicine, Tuesday, at noon, will have as speaker John F. Enders, Ph.D., Boston, whose subject will be "Advances in Knowledge of the Poliomyelitis Viruses." Dr. Hodges, luncheon speaker for the section of radiology, will consider "Present Achievements and Future Promise of Radiology." Dr. Karl Harpuder, New York City, guest speaker at the luncheon of the section of physical medicine, will present "Rehabilitation of the Patient with Arterial Disease of the Limbs." The annual discourse, "The Involuntary Plight of the Voluntary Hospital," will be delivered Tuesday afternoon by Dr. Carl Bearse, Boston. The Wednesday morning session will open at 9 a. m. with a panel discussion, "Clinical and Epidemiologic Aspects of Poliomyelitis." At 11:05 a. m. the Shattuck Lecture, "The Portal Circulation," will be presented by Dr. Charles G. Child III, Boston. Dr. Henry H. Kessler, West Orange, N. J., and Mr. Kenneth E. Pohlmann, of the United Mine Workers' of America Welfare and Retirement Fund, will be among the participants in a panel discussion on rehabilitation and workmen's compensation, Wednesday, 2 p. m., which will be followed by a panel discussion, "How to Make the Continuing Medical Education of Physicians Painless and Effective." At the annual dinner, the guest speaker will be Christian A. Herter, governor of Massachusetts. A motion picture, "Nephrosis in Children," will precede a pediatrics symposium by the staff of the Children's Medical Center on Thursday morning. Dr. Warren H. Cole, Chicago, guest speaker for the luncheon meeting of the section of surgery, Thursday noon, will have as his subject "Cancer of the Colon." Dr. Cole will discuss "Surgical Aspects of Jaundice" at the general session Thursday afternoon. "Fractures of the Malar Bone with Orbital Deformity" will be the subject of the luncheon speaker, Dr. John Marquis Converse, New York City, for the section on ophthalmology and otolaryngology. He will also present "Surgical Treatment of Facial Injuries" at the Thursday afternoon general session. Dr. Henry W. Brosin, Pittsburgh, who will consider "The Doctor and His Patient," Thursday afternoon, will be guest speaker for the section on psychiatry and neurology at its luncheon Thursday, at which time he will speak on problems of work. The annual golf tournament is scheduled for Wednesday afternoon.

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MICHIGAN

Exhibit on Industrial Health.—Wayne University College of Medicine, the Detroit Board of Health, the U. S. Public Health Office, and several Detroit firms are cosponsoring "Health in Industry," an exhibit at the Detroit Historical Museum, which will be on display through May 31. The exhibition illustrates the effort of the industrial physician, hygienist, and safety engineer to insure the health of the modern worker. Displays include a completely equipped first aid room and the history of industrial health programs.

MINNESOTA

Lectures by British Physician.—Dr. Richard Robertson Trail, London, England, will speak at a dinner in connection with the Christmas Seal Institute at the state office in St. Paul, May 16, at the annual meeting of the St. Louis County Tuberculosis and Health Association in Duluth, May 17, and at the meeting of the Minnesota Rehabilitation Association in St. Paul, May 18. A fellow of the Royal College of Physicians of London, Dr. Trail is credited with having instituted mass x-rays for the British Ministry of Health. He is consulting physician, Royal Chest Hospital, and consultant to the Royal Air Force organizations.

State Medical Meeting in Minneapolis.—The 102nd annual meeting of the Minnesota State Medical Association will convene at the Hotel Radisson, Minneapolis, May 22-25, under the presidency of Dr. Arnold O. Swenson, Duluth. Monday morning the Russell D. Carman Memorial Lecture, "The Position of Radiology in Cardiovascular Diagnosis," will be delivered by Dr. Fred J. Hodges, Ann Arbor, Mich., and the Minnesota Heart Association Lecture, "Diagnostic Cardiac Silhouettes and Electrocardiograms," by Dr. Arthur M. Master, New York City. Monday afternoon Dr. Edward A. Gall, Cincinnati, will give the Arthur H. Sanford Memorial Lecture, "Enigmas in Lymphoma: The Reticulum Cell and Mycosis Fungoides," and Dr. Wilhelm C. Hueper, Bethesda, Md., will present the Minnesota Division, American Cancer Society Lecture, "Causal and Preventive Aspects of Environmental Cancer." The Northwestern Pediatric Society Lecture, "The Diabetic Child," by Dr. John A. Anderson, Minneapolis, is scheduled for Tuesday morning, as is the Minnesota Medical Foundation Lecture, "Present Day Concepts of Diabetes Mellitus" by Dr. Arnold Lazarow, Minneapolis. Tuesday afternoon Dr. James J. Swendson, St. Paul, will serve as moderator for the following obstetric symposium:

- Current Report on the Minnesota Maternal Mortality Study, Alex Barno, Minneapolis.
- Obstetric Anesthesia, John E. Osborn, Rochester.
- Foibles and Pitfalls in Obstetric Hemorrhage, Harold A. Ott, Royal Oak, Mich.

The presidential address will be delivered at the banquet, Tuesday, 7 p. m., at which Dr. Elmer Hess, Erie, Pa., President-Elect, American Medical Association, will discuss "The Doctor's Responsibility." The scientific sessions will close Wednesday afternoon with a panel discussion, "What's New in Internal Medicine?" for which Dr. Herbert F. R. Plass, Minneapolis, will serve as moderator. All sessions will open with closed circuit color television. Round-table luncheons are scheduled daily at 12:15 p. m. Guest speaker at the Monday luncheon will be Dr. Charles O. McCormick, Indianapolis, whose subject will be "The Changing Status of Cesarean Section." At the Tuesday luncheon Dr. Ott will present "Defibrination Syndrome." The guest speaker at the Wednesday luncheon will be Dr. Jack A. Pritchard, Cleveland, whose topic will be "Fulminating Eclampsia."

The following sports events have been scheduled for Sunday: archery tournament, 1 p. m., at Lake Nokomis Archery Range; annual golf tournament, 1 p. m., at the Minneapolis Golf Club; and a skeet and trap shoot, 11 a. m., at the Twin City-Hopkins Gun Club. The sports events dinner ($4.50, gratuities included) will be held at 6:30 p. m. at the Minneapolis Golf Club. The Minnesota State Medical Association will hold open house at the Hotel Radisson, Monday, 9 p. m. Physicians and their wives are invited to attend as guests of the Hennepin County Medical Society. The woman's auxiliary to the Minnesota State Medical Association will hold its meetings in conjunction with the annual meeting of the parent association.

MISSOURI

Hodgen Lecture on Jaundice.—At the regular meeting of the St. Louis Medical Society, May 17, 8:30 p. m., the annual Hodgen Lecture will be delivered by Dr. Warren H. Cole, professor of surgery, University of Illinois College of Medicine, Chicago, on "Surgical Aspects of Jaundice."

Thompson Lectureship.—The Thompson, Brumm, and Knepper Clinic, St. Joseph, announces the sixth annual Dr. F. G. Thompson, Sr. Lectureship, "Pancreatitis, Fundamental and Clinical Aspects," by Dr. Walter C. MacKenzie, professor of surgery, University of Alberta, Edmonton, Alberta, Canada, to be presented at 8:15 p. m., May 19, in the Clinic Building, 902 Edmond St. The profession is invited.

NEBRASKA

State Medical Meeting in Omaha.—The 87th annual session of the Nebraska State Medical Association will convene at the Hotel Paxton, Omaha, May 16-19. Presentations by out-of-state speakers include:

- Critical Review of Current Therapy in Myocardial Infarction, James F. Hammarsten, Oklahoma City.
- Chemotherapy of Malignant Diseases, Leonard P. Eliel, Oklahoma City.
- Problem of Drug Resistance in Antibiotic Therapy, Thomas A. Haight, Oklahoma City.
- Pathophysiological Considerations of the Human Colon, Stewart G. Wolf, Oklahoma City.
- Common Breast Problems, William B. Hutchinson, Seattle.
- New Concept in Treatment of Esophagitis and Related Problems, K. Alvin Merendino, Seattle.
- Comparison of the Billroth I and Billroth II Gastrectomy: Clinical Experiences with Five Hundred Operations and Experimental Studies, Henry N. Harkins, Seattle.
- Diverticulitis of the Colon, Caleb S. Stone Jr., Seattle.
- B.C.G. in the Prevention of Tuberculosis, Pembroke N. MacDermot, Montreal, Canada.
- Resuscitation of the New Born, James H. Routledge, Montreal, Canada.
- Cancer of the Corpus Uteri, Clifford V. Ward, Montreal, Canada.

At 3 p. m., Tuesday, the presidential address will be delivered by Dr. Earl F. Leininger, McCook, after which Dr. William E. Wright, Creighton, will be installed as president. At 4 p. m. Dr. John L. Batty, McCook, will preside at a symposium, "Hypertension—Pathogenesis and Management." The annual banquet will be held Wednesday at 7 p. m. Dr. Elmer Hess, Erie, Pa., President-Elect, American Medical Association, will present "Why You Are the A. M. A." The golf tournament is scheduled for Monday, 1 p. m., at the Omaha Country Club, as is the trap shoot. Sportsman dinner, 7 p. m., will be at the Gourmet Steak and Seafood House, 4423 Dodge St.

NEW YORK

Meeting on Anesthesia.—A meeting on anesthesia of the Medical Society of the County of Kings, May 17, in McNaughton Auditorium, Brooklyn, will offer "Applications of the Reserve Midget in Obstetrical Anesthesia," a preliminary report by Drs. Vincent Tricomi, David W. Bauer, and Louis M. Hellman, Brooklyn, and "Obstetrical Anesthesia in Great Britain" by Sir Robert Reynolds MacIntosh, Nuffield Professor of Anesthesiology, Oxford University, Oxford, England. Discussion will be by Dr. Virginia Apgar, professor of anesthesiology, Columbia University College of Physicians and Surgeons, New York City.

Joint Dental-Surgical Conference.—The Jewish Chronic Disease Hospital, East 49th Street and Rutland Road, Brooklyn 3, will present a joint conference of the departments of dentistry and surgery, May 18, 8:30 p. m., in Joseph Albert Temple, under the chairmanship of Joseph J. Obst, D.D.S., Brooklyn. "Problems of Surgical Emergencies" will be discussed in the following program:

- Review of Preparation for Hospital Operating Room Procedures, David Kershner, Brooklyn.
- Emergency Problems in Local and General Anesthesia, Aaron H. Kornblau, Jamaica, and Stanley R. Spiro, D.D.S., New Hyde Park.
- Management of Cardiac Emergencies, Philip Crastnopol, Kew Gardens, and Leon Bluestone, Brooklyn.

A collation will follow the motion picture demonstration on (1) Treatment of Cardiac Emergencies and (2) Tracheotomy.

Visiting Professor.—Sir Robert Reynolds Macintosh, Nuffield Professor of Anaesthetics at the University of Oxford, Oxford, England, was appointed visiting professor of anesthesiology at the State University of New York College of Medicine at New York City, Brooklyn, for the month of May. At present a civilian consultant to the Royal Air Force, Sir Robert served during World War I as a pilot in the Royal Flying Corps and the Royal Air Force. During World War II, as air commodore with the Royal Air Force, he was consultant in charge of anesthetics. He is a member of the board of the faculty of anesthetists, Royal College of Surgeons, and a past president of the section on anesthetics of both the British Medical Association and the Royal Society of Medicine.

New York City

Tumor Clinic.—Dr. Solomon Silver will present "The Internist Looks at Lumps in the Thyroid: Nodular Nonsense" at the tumor clinic conference, Harlem Hospital, May 18, 10:45 a. m.

Course for Otologists.—A postgraduate course (otorhinology PM 31) on rhinoplasty, reconstructive surgery of the nasal septum, and otoplasty will be presented by Dr. Irving B. Goldman, July 16-30, at the Mount Sinai Hospital, New York 29, in affiliation with Columbia University. The course (9 a. m. to 9 p. m.) covers the basic principles in complete rhinoplasty including reconstructive surgery of the nasal septum and otoplasty. Lectures, laboratory technique with anatomic demonstrations, and surgical and "follow-up" clinics are included. Candidates should apply to Registrar for Medical Instruction, Mount Sinai Hospital, 5th Avenue and 100th St., New York 29.

NORTH CAROLINA

Industrial Safety Meeting.—Safety experts from throughout the nation will meet at the Robert E. Lee Hotel in Winston-Salem, May 18-20, for the 25th annual North Carolina Statewide Industrial Safety Conference. Speakers will include Mr. Ralph Kuhli, assistant director of the Home Safety Section of the National Safety Council, Mr. Chris Henkle, safety director of the E. I. DuPont Corporation of Kinston, and Dr. Walter C. Humbert, Greenville, Pitt County Health Officer. All interested persons are invited. There is no registration fee.

OHIO

Lectures by Dr. Ravdin.—The Inter-Hospital Postgraduate Lecture Series presented by the Medical Advancement Trust of the Maumee Valley Hospital and the Toledo chapter of the American College of Surgeons will be offered without charge, May 19-20, at the Academy of Medicine of Toledo and Lucas County, 3101 Collingwood Blvd., Toledo. Dr. Isidor S. Ravdin, professor of surgery, University of Pennsylvania School of Medicine, Philadelphia, will talk on the surgical treatment of gastrointestinal diseases. At 12 noon Thursday he will present "The Problem of the Gastric Ulcer"; at 4:30 p. m. "The Treatment of the Complications of Ulcer (Duodenal)"; and at 8 p. m. "Regional Ileitis." On Friday he will discuss "Polyps of the Large Bowel" at 12 noon; "Malignant Lesions of the Large Bowel," 4:30 p. m.; and "The Problem of Biliary Tract Diseases," 8 p. m.

Course on Internal Medicine.—"Internal Medicine: Selected Topics" is the subject of a course to be given May 23-27 in the Mont Reid Pavilion, Cincinnati General Hospital, University of Cincinnati College of Medicine, under the auspices of the American College of Physicians and the direction of Dr. Marion A. Blankenhorn. Fee for A. C. P. members, $30; nonmembers, $60. Dr. Eugene B. Ferris, professor of medicine, Emory University School of Medicine, Atlanta, Ga., will be a guest lecturer. The program will consist of morning lectures and, on three days, a period of ward rounds in smaller groups and afternoon lectures followed by a conference in which informal discussion will be encouraged. Advances in diagnosis and treatment will be stressed. Opportunity will be provided to visit the Kettering Laboratory of Applied Physiology, the Drake Memorial Hospital to see the facilities for chronic diseases and rehabilitation, and the various special research laboratories in the department of medicine.

PENNSYLVANIA

Meeting on Ophthalmology and Otolaryngology.—The 13th annual meeting of the Pennsylvania Academy of Ophthalmology and Otolaryngology, May 18-21, at the Hotel Traymore, Atlantic City, N. J., will be a joint meeting with the New Jersey Society of Ophthalmology and Otolaryngology and the West Virginia Academy of Ophthalmology and Otolaryngology. Dr. James H. Delaney, Erie, president of the academy, will preside. The guest of honor for the meeting will be Dr. Elmer Hess, Erie, President-Elect of the American Medical Association. Out-of-state speakers will include: Dr. F. Bruce Fralick, Ann Arbor, Mich.; Dr. Peter C. Kronfeld, Chicago; Drs. John M. McLean and Joseph L. Goldman, New York; Dr. Edwin B. Dunphy, Boston; Dr. Charles I. Thomas, Cleveland; Dr. William C. Owens, Baltimore; Dr. William C. Huffman, Iowa City; and Dr. Heinrich F. G. Kobrak, Detroit.

Meeting of Radiologists.—The 40th annual meeting of the Pennsylvania Radiological Society will convene at the Berkshire Hotel, Reading, May 20-21. Presentations by invitation will include:

Roentgen Diagnosis of Tumors of the Naso-Pharynx, Roderick L. Tondreau, Philadelphia.
Roentgenography of the Biliary System with Cholegrafin, Fred S. Winter, Philadelphia.
Blue Shield of Pennsylvania, with Special Reference to Its Relation to Radiology, J. A. Daugherty, Harrisburg.
Use of the Scintiscanner in the Detection and Localization of Thyroid Disease, Donald Ferguson, Philadelphia.
Influence of Histologic Type on Survival Following Radiotherapy for Carcinoma of the Lung, Eugene R. Kutz, Pittsburgh.
Arteriovenous Fistulae of the Lung, Eugene W. Kelly, Philadelphia.
Screen Intensification in Radiologic Diagnosis and Therapy, Russell H. Morgan, Baltimore.

Drs. Antolin Raventos and George Lewis of Philadelphia have been invited to give a refresher course on treatment methods in cancer of the cervix Saturday morning.

Pittsburgh

Symposiums on Poliomyelitis and Colonic Lesions.—The Allegheny County Medical Society will hold its annual scientific session and dinner at the Hotel William Penn, Pittsburgh, May 18. Dr. James Stirling, Bellevue, president, Pittsburgh Pediatric Society, will serve as moderator for a symposium on poliomyelitis, 2-3:30 p. m., in which use of gamma globulin will be discussed by Dr. William McD. Hammon, head of the department of epidemiology and microbiology, University of Pittsburgh Graduate School of Public Health, and use of vaccines by Dr. Jonas E. Salk, research professor of bacteriology, University of Pittsburgh. A symposium on nonmalignant lesions of the colon will be presented from 3:30-5:30 p. m. by Drs. Rupert B. Turnbull Jr. and Charles Brown, Cleveland Clinic, and Dr. Edwin R. Fisher, Oakland Veterans Administration Hospital, Pittsburgh. The annual dinner, 7 p. m., will have as speaker Countess Maria Pulaski, whose talk will be entitled "My Life as a Spy." Ladies, interns, and residents are invited. For dinner reservations ($6 a plate including gratuity) contact Dr. Ernest W. Willetts, Treasurer, 225 Jenkins Bldg., Pittsburgh 22.

SOUTH DAKOTA

Medical Uses of Radioisotopes.—The University of South Dakota School of Medical Sciences, Vermillion, will hold a postgraduate course, "Clinical Radioisotopes," June 14-18. The course, which will consist of laboratory and clinical instruction in the use of radioactive iodine for diagnosis of thyroid disease and for blood volume determinations, will meet the minimum A. E. C. requirements for the physician experience with isotopes that must be gained before authorization can be requested from the A. E. C. for these clinical diagnostic radioactive isotope procedures. The course is limited to 12 participants. Application for registration should be sent to F. E. Kelsey, Ph.D., University of South Dakota School of Medical Sciences, Vermillion.

WISCONSIN

Alumni Day.—The University of Wisconsin Medical School, Madison, will present its annual Alumni Day program May 20. The morning session will be devoted to grand rounds in the Bardeen Auditorium. After luncheon in the hospital cafeteria

the afternoon program will be presented by the class of 1953, with Dr. Mischa J. Lustok, Milwaukee, presiding. A social hour at 6 p. m. will be followed by dinner at the Maple Bluff Country Club.

GENERAL

Competition for Medical Students.—The 10th annual Schering award competition is open to American and Canadian students, who are invited to submit papers on (1) current concepts in the management of osteoporosis; (2) prevention and treatment of blood transfusion reactions; and (3) recent trends in the clinical use of adrenal cortical steroids. Prizes of $500 and of $250 will be awarded for each of the three subjects. Deadline for entry forms specifying the choice of title is July 1. Manuscripts should be mailed not later than Oct. 1. Students may compete individually or cooperatively in teams. Information for the award competition is available from the Schering Award Committee, 60 Orange St., Bloomfield, N. J.

Research in Blood Diseases.—The Hematology Research Foundation invites applications for the Ruth Berger Reader Fellowship for research in blood diseases in the academic year 1955-1956. Stipend for the fellowship is $1,500 per year with the option to renew. The offer is made to workers of any race, creed, or color in the United States. The foundation also invites applications for grants-in-aid for the purpose of hematological research for the period of one year. Nine copies of the application must be submitted no later than June 15 to Hematology Research Foundation, 64 W. Randolph St., Chicago 1. Awards will be announced by the Medical Advisory Council the latter part of June. The council will choose the applicants on the basis of merit and will also choose the institution in Chicago in which the work is to be done.

Art Exhibit at Atlantic City, N. J.—The 17th annual art exhibit of the American Physicians Art Association will be held on the mezzanine floor of the convention auditorium in conjunction with the Annual Meeting of the American Medical Association in Atlantic City, June 6-10. Prizes will be given for a beginners' class (less than three years' pursuit of the hobby) and an advanced class. The mediums represented will include oils; water color; sculpture; pastels; drawing-pen, ink, pencil, crayon, or charcoal; photography: black and white, Kodachrome, or colored; ceramics; wood carving; metal work; and needle work. Membership fee is $5. Any bona fide member of the A. M. A. is eligible to exhibit (limit of two pieces to each member, with a $5 charge for each piece exhibited). The deadline shipping date is May 25. Address communications to: A. P. A. A. Secretary, Dr. Francis H. Redewill Jr., 124 E. Hadley St., Whittier, Calif.

Medical Librarians Meet in Milwaukee.—The 54th annual meeting of the Medical Library Association will convene in the Hotel Schroeder, Milwaukee, May 16-20. Physicians who will present papers on Tuesday include Drs. John S. Hirschboeck, Joseph F. Kuzma, Abraham B. Schwartz, Armand J. Quick, and G. Kasten Tallmadge, of Milwaukee. On Wednesday buses will leave the Hotel Schroeder for Madison at 8:30 a. m., where a tour of the university library will be made during the morning. At 2 p. m. Dr. William S. Middleton, chief medical director, Veterans Administration, Washington, D. C., who recently resigned as dean of the University of Wisconsin Medical School, Madison, will present "Aspects of Wisconsin Medical History," and Dr. Erwin H. Ackerknecht, chairman, department of the history of medicine at the university, will consider "Medical Art as a Psychological Safety Valve." Dr. Sumner L. Koch, professor of surgery, Northwestern University Medical School, Chicago, will speak at the banquet Thursday on "Sir William Osler and the Medical Libraries."

American College of Cardiology.—The American College of Cardiology will hold its fourth annual convention at the Hotel Biltmore, New York, May 18-20. The sessions will open Thursday at 8:30 p. m. with "The Metabolism of the Heart with Particular Reference to Hypertension and Cardiac Hypertrophy" by Dr. Richard J. Bing, Birmingham, Ala. Dr. Bing will also serve as moderator for the symposium on the late results of cardiovalvular surgery, Saturday at 2 p. m. The Friday session will open with a symposium on physiological aspects of hypertension, which will be followed by a symposium on clinical aspects of hypertension, a panel meeting with Dr. Charles K. Friedberg, New York, as moderator. The afternoon session will also be a panel meeting, for which Dr. Arthur M. Fishberg, New York, will moderate a symposium on treatment of hypertension. Saturday morning will be devoted to a symposium on surgery of the aorta, with Dr. Robert P. Glover, Philadelphia, as moderator. The sessions will close Saturday with a presentation (4:30 p. m.), "Preliminary Observations on the Circulation of the Giraffe," by Prof. R. H. Goetz, department of surgical research, University of Cape Town Medical School, Cape Town, South Africa. On Friday Dr. Walter S. Priest, Chicago, will be installed as the new president of the college. A reception and dinner are scheduled for Thursday, 6 p. m., and the annual banquet and reception for Friday.

Catholic Hospital Convention.—The 40th annual convention of the Catholic Hospital Association will be at the Kiel Auditorium, St. Louis, May 16-19. The general session Tuesday afternoon has been reserved for the following program, entitled "Medical Care in the Future":

Medicine in the Future, James W. Colbert Jr., St. Louis.
Importance of Diagnostic Service, John F. Sheehan, Chicago.
Psychiatry in the General Hospital, Thomas R. Thale, St. Louis.
Geriatrics in the General Hospital, William B. Kountz, St. Louis.
Rehabilitation in the General Hospital, Miss Mary E. Switzer, Washington, D. C.

Wednesday morning Dr. William J. Lahey, Hartford, Conn., will preside at a mock medical staff meeting at which Dr. Robert S. Myers, Chicago, will serve as panel leader. Wednesday at 3:45 p. m. Dr. David Littauer, St. Louis, will present "Hospital Administration Looks Ahead." The general session Thursday will be concerned with a symposium entitled "Health of Religious," over which Mother Anna Dengel, S.C.M.M., M.D., Philadelphia, will preside, and for which she will deliver the opening address, "Importance of Health in Life of a Religious." "Medical Care of Religious" will be presented by Dr. Gertrude M. Engbring, Chicago, and "Emotional Factors in Lives of Religious" by Dr. Catherine L. McCorry, Chicago. Panel discussion will precede and follow the final presentation, "Health and the Spiritual Life of the Religious," by Rev. Joseph F. Gallen, S.J., Woodstock, Md.

Urologists Meet in Los Angeles.—The 50th annual meeting of the American Urological Association will be held at the Hotel Biltmore, Los Angeles, May 16-19. Single author invitational addresses include:

Ureterovesical Obstruction in Children, Harold H. Edelbrock, Los Angeles.
Surgical Approaches to the Kidney, Elton Morel, Los Angeles.
Electron Microscopy of the Kidney, Daniel C. Pease, Ph.D., Los Angeles.
Genes, Viruses and the Nature of Life, George W. Beadle, Ph.D., Pasadena, Calif.
Structure and Properties of Proteins, Linus C. Pauling, Ph.D., Pasadena, Calif.
Treatment of Acute Anuria, Telfer B. Reynolds, Los Angeles.
Management of Some Late Complications of Pelvic Irradiation, John J. Murphy, Philadelphia.
Ureteral Reconstruction with Split Skin Grafts: An Experimental Study, Victor A. Politano, Durham, N. C.
Experimental Studies of Regeneration of the Ureter Without Intubation, Sidney R. Weinberg, Brooklyn.
Abdominal Venography in Urological Diagnosis, Joseph J. Kaufman, Beverly Hills, Calif.

Motion pictures will be demonstrated Monday, Wednesday, and Thursday, 8-9 a. m., and Tuesday afternoon, 2-5 p. m. Monday at 2 p. m. a three hour lecture on diseases of the kidney will be delivered by Dr. Fathollah K. Mostofi, Washington, D. C. The president's address, "Fifty Years and After," which will be delivered Wednesday at 2 p. m., will be followed by presentations of the prize essays: first prize, "Reserved Seromuscular Grafts in Urinary Tract Reconstruction," by Dr. William C. Shoemaker (by invitation), Philadelphia; second prize, "A Histopathologic Search for Chronic Seminal Vesiculitis," by Dr. James A. Calams (by invitation), Chicago. The annual golf tournament will be held at the Wilshire Country Club, Monday, starting at 12:30 p. m. Luncheon will be served at the club for those who desire it, and the annual golf dinner and awarding of prizes and trophies will follow the tournament at the same location.

LATIN AMERICA

Cuba Honors American Physicians.—The President of the Republic of Cuba has signed a decree awarding the National Order of Merit, "Carlos J. Finlay," in the grade of Officer to Dr. James T. Case, Santa Barbara, Calif., and Dr. Juan A. del Regato, Colorado Springs, Colo. The awards were made at the Fifth Inter-American Congress of Radiology in Washington, D. C., April 24-29. Dr. Case is the president of the congress, and Dr. del Regato is the secretary for Latin America.

FOREIGN

Postgraduate Courses in Germany.—The fourth annual Convention for Medical Postgraduate Work in Germany, June 1-5, in Berlin, will consider on successive days (1) Diseases of the Pancreas and of the Biliary Passages; (2) Allergy; (3) Pediatrics; (4) Surgery of Accidents; and (5) Problems of Practical Medicine. Information can be obtained from Kongressgesellschaft für ärztliche Fortbildung e.V., Berlin-Steglitz, Klingsorstr. 29. The Congress of the German Society for the Combat of Crippling Deformities, June 2-3, will be held in conjunction with the postgraduate meeting. Information about this congress may be obtained from Prof. Dr. A. N. Witt, Oskar-Helene-Heim, Berlin-Dahlem, Clayallee 229.

Rheumatology Congress.—The Third European Rheumatology Congress will be held at the Hague, June 13-17, 1955, at the Kurhaus in Scheveningen, Netherlands, under the auspices of the Ligue européenne contre le Rhumatisme. The plenary sessions will feature reports on rheumatism and social medicine; connective tissue, to which Dr. Morris Ziff, New York City, will contribute "Studies on Alteration of Connective Tissue in Collagen Diseases"; osteoarthritis of the spine and disk degeneration; and rheumatic fever, which will include a paper, "Prophylaxis of Rheumatic Fever," by Dr. Gene H. Stollerman, New York City. The entertainment program includes receptions, a symphony concert, and excursions to Amsterdam, Delft, and other cities. A seven day postcongress tour through the Netherlands and Belgium will be combined with a few scientific meetings. For information write Secretary of the Third European Congress on Rheumatism, Burg. de Monchyplein 9, The Hague, Netherlands.

MEETINGS

AMERICAN MEDICAL ASSOCIATION: Dr. George F. Lull, 535 North Dearborn St., Chicago 10, Secretary.

1955 Annual Meeting, Atlantic City, N. J., June 6-10.

1955 Clinical Meeting, Boston, Nov. 29-Dec. 2.

1956 Annual Meeting, Chicago, June 11-15.

1956 Clinical Meeting, Seattle, Nov. 27-30.

1957 Annual Meeting, New York, June 3-7.

AMERICAN ACADEMY OF TUBERCULOSIS PHYSICIANS, Ritz-Carlton Hotel, Atlantic City, N. J., June 4. Dr. Oscar S. Levin, P. O. Box 7011, Denver, Secretary.

AMERICAN ASSOCIATION OF GENITO-URINARY SURGEONS, Monterey Lodge, Monterey, Calif., May 22-25. Dr. John A. Taylor, 2 East 54th St., New York 22, Secretary.

AMERICAN ASSOCIATION ON MENTAL DEFICIENCY, Statler Hotel, Detroit, May 24-28. Dr. Lloyd N. Yepsen, New Lisbon, N. J., Secretary.

AMERICAN COLLEGE OF ANGIOLOGY, Brighton Hotel, Atlantic City, N. J., June 4. Dr. Hugh Murphy, 151 East 83d St., New York, Secretary.

AMERICAN COLLEGE OF CARDIOLOGY, Hotel Biltmore, New York, May 19-21. Dr. Philip Reichert, 140 West 57th St., New York 19, Secretary.

AMERICAN COLLEGE OF CHEST PHYSICIANS, Atlantic City, N. J., June 2-5. Mr. Murray Kornfeld, 112 East Chesnut St., Chicago 11, Executive Director.

AMERICAN DIABETES ASSOCIATION, Chalfonte-Haddon Hall, Atlantic City N. J., June 4-5. Dr. John A. Reed, 1 East 45th St., New York 17, Secretary

AMERICAN ELECTROENCEPHALOGRAPHIC SOCIETY, Palmer House, Chicago, June 10-12. Dr. W. T. Liberson, EEG Research Laboratory, Veterans Administration Hospital, Northampton, Mass., Secretary.

AMERICAN GASTROENTEROLOGICAL ASSOCIATION, Claridge Hotel, Atlantic City, N. J., June 3-4. Dr. H. Marvin Pollard, University Hospital, Ann Arbor, Mich., Secretary.

AMERICAN GASTROSCOPIC SOCIETY, West Room, Haddon Hall, Atlantic City, N. J., June 2. Dr. John Tilden Howard, 12 East Eager St., Baltimore 2, Secretary.

AMERICAN GYNECOLOGICAL SOCIETY, Chateau Frontenac, Quebec, Canada, May 23-25. Dr. John I. Brewer, 104 S. Michigan Blvd., Chicago 3, Secretary.

AMERICAN HEARING SOCIETY, Hotel Morrison, Chicago, June 12-14. Miss Tracy Copp, 817 Fourteenth St. N.W., Washington 5, D. C., Secretary.

AMERICAN MEDICAL WOMEN'S ASSOCIATION, Hotel Dennis, Atlantic City, N. J., June 2-5. Miss L. T. Majally, 1790 Broadway, New York 19, Executive Secretary.

AMERICAN NEUROLOGICAL ASSOCIATION, Palmer House, Chicago, June 13-15. Dr. H. Houston Merritt, 710 West 168th St., New York 32, Secretary.

AMERICAN OPHTHALMOLOGICAL SOCIETY, Greenbrier Hotel, White Sulphur Springs, W. Va., June 2-4. Dr. Maynard C. Wheeler, 30 West 59th St., New York 19, Secretary.

AMERICAN ORTHOPEDIC ASSOCIATION, Greenbrier Hotel, White Sulphur Springs, W. Va., June 19-22. Dr. George O. Eaton, 4 East Madison St., Baltimore 2, Secretary.

AMERICAN PEDIATRIC SOCIETY, Chateau Frontenac, Quebec, Canada, June 13-17. Dr. Aims C. McGuinness, Medical Laboratories, University of Pennsylvania, Philadelphia 4, Secretary.

AMERICAN PROCTOLOGIC SOCIETY, Hotel Statler, New York, June 1-4. Dr. Karl Zimmerman, 3500 Fifth Ave., Pittsburgh 13, Secretary

AMERICAN RHEUMATISM ASSOCIATION, Hotel Dennis, Atlantic City, N. J., June 3-4. Dr. William H. Kammerer, 33 East 61st St., New York 21, Secretary.

AMERICAN SOCIETY FOR ARTIFICIAL INTERNAL ORGANS, Hotel Chelsea, Atlantic City, N. J., June 4-5. Dr. Peter P. Salisbury, Institute for Medical Research, 4751 Fountain Ave., Los Angeles 29, Acting Secretary.

AMERICAN SOCIETY FOR THE STUDY OF STERILITY, Ritz-Carlton Hotel, Atlantic City, N. J., June 3-5. Dr. Herbert H. Thomas, 920 South 19th St., Birmingham, Ala., Secretary.

AMERICAN THERAPEUTIC SOCIETY, Shelburne Hotel, Atlantic City, N. J., June 2-5. Dr. Oscar B. Hunter Jr., 915 Nineteenth St. N.W., Washington 6, D. C., Secretary.

AMERICAN TRUDEAU SOCIETY, Schroeder Hotel, Milwaukee, May 23-27. Dr. W. G. Childress, 1790 Broadway, New York 19, Secretary.

AMERICAN UROLOGICAL ASSOCIATION, Hotel Biltmore, Los Angeles, May 16-19. Dr. Charles H. deT. Shivers, 121 South Illinois Ave., Atlantic City, N. J., Secretary.

ARKANSAS MEDICAL SOCIETY, Arlington Hotel, Hot Springs, May 29-June 1. Dr. J. J. Monfort, 215 Kelley Bldg., Fort Smith, Secretary.

ASSOCIATION FOR RESEARCH IN OPHTHALMOLOGY, Dennis Hotel, Atlantic City, N. J., June 7-9. Dr. Lorand V. Johnson, 10515 Carnegie Ave., Cleveland 6, Secretary.

CATHOLIC HOSPITAL ASSOCIATION OF THE U. S. AND CANADA, Kiel Auditorium, St. Louis, May 16-19. Mr. M. R. Kneifl, 1438 South Grand Blvd., St. Louis 4, Executive Secretary.

IDAHO STATE MEDICAL ASSOCIATION, Sun Valley, June 19-22. Mr. Armand L. Bird, 364 Sonna Bldg., Boise, Executive Secretary.

ILLINOIS STATE MEDICAL SOCIETY, Hotel Sherman, Chicago, May 17-20. Dr. Harold M. Camp, 224 South Main St., Monmouth, Secretary.

MAINE MEDICAL ASSOCIATION, The Samoset, Rockland, June 19-21. Mrs. Esther M. Kennard, 142 High St., Portland 3, Secretary.

MASSACHUSETTS MEDICAL SOCIETY, Hotel Statler, Boston, May 17-19. Dr. Robert W. Buck, 22 Fenway, Boston 15, Secretary.

MEDICAL LIBRARY ASSOCIATION, Hotel Schroeder, Milwaukee, May 17-20. Miss Esther Judkins, Rockefeller Institute, 66th St. at York Ave., New York 21, Secretary.

MEDICAL SOCIETY EXECUTIVES CONFERENCE, Ritz-Carlton Hotel, Atlantic City, N. J., June 4. Mr. W. H. Bartleson, 3036 Gillham Road, Kansas City 8, Mo., Secretary.

MEDICAL SURGICAL CONFERENCE, Great Falls, Mont., June 20-21. Dr. Carl Nelson, 600 Central Ave., Great Falls, Mont., Secretary.

MINNESOTA STATE MEDICAL ASSOCIATION, Hotel Radisson, Minneapolis, May 23-25. Mr. R. R. Rosell, Lowry Medical Arts Bldg., St. Paul 2, Executive Secretary.

NATIONAL TUBERCULOSIS ASSOCIATION, Hotel Schroeder, Milwaukee, May 23-27. Dr. James E. Perkins, 1790 Broadway, New York 19, Managing Director.

NEBRASKA STATE MEDICAL ASSOCIATION, Hotel Paxton, Omaha, May 16-19. Dr. R. B. Adams, 1315 Sharp Bldg., Lincoln, Secretary.

NORTH AMERICAN CHAPTER, INTERNATIONAL SOCIETY OF ANGIOLOGY, Chalfonte-Haddon Hall, Atlantic City, N. J., June 4. Dr. Henry Haimovici, 105 East 90th St., New York 28, Secretary.

PACIFIC NORTHWEST SOCIETY OF PLASTIC AND RECONSTRUCTIVE SURGEONS, Spokane, Wash., May 21. Dr. E. E. Banfield, Medical Arts Bldg., Tacoma 2, Washington, Secretary.

SOCIETY OF BIOLOGICAL PSYCHIATRY, Palmer House, Chicago, June 11-12. Dr. George N. Thompson, 2010 Wilshire Blvd., Los Angeles 5, Secretary.

SOCIETY FOR INVESTIGATIVE DERMATOLOGY, Ritz-Carlton Hotel, Atlantic City, N. J., June 4-5. Dr. Herman Beerman, 255 South 17th St., Philadelphia 3, Secretary.

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SOCIETY FOR PEDIATRIC RESEARCH, Chateau Frontenac, Quebec, Canada, June 15-18. Dr. Sydney S. Gellis, 330 Brookline Ave., Boston 15, Secretary.

SOCIETY FOR VASCULAR SURGERY, Atlantic City, N. J., June 5. Dr. George D. Lilly, 333 Ingraham Bldg., Miami 32, Fla., Secretary.

SOUTH DAKOTA STATE MEDICAL ASSOCIATION, Lawler Hotel, Mitchell, May 21-24. Dr. G. I. W. Cottam, 300 First National Bank Bldg., Sioux Falls, Secretary.

THE ENDOCRINE SOCIETY, Chalfonte-Haddon Hall, Atlantic City, N. J., June 2-4. Dr. Henry H. Turner, 1200 N. Walker St., Oklahoma City 3, Secretary.

UPPER PENINSULA MEDICAL SOCIETY, Gateway Hotel, Land O'Lakes, Wis., June 17-18. Dr. William H. Wacek, Box 680, Ironwood, Mich., Secretary.

WOMAN'S AUXILIARY TO THE AMERICAN MEDICAL ASSOCIATION, Haddon Hall, Atlantic City, N. J., June 6-10. Miss Margaret Wolfe, 535 N. Dearborn St., Chicago 10, Executive Secretary.

WYOMING STATE MEDICAL SOCIETY, Hotel Connor, Laramie, June 12-15. Mr. Arthur R. Abbey, Box 2036, Cheyenne, Executive Secretary.

EXAMINATIONS AND LICENSURE

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I and II in 1955.* June 21-22, Sept. 6-7 (Part I only). Candidates may file applications at any time, but the National Board must receive them at least six weeks before the date of the examination. New candidates should apply by formal registration; registered candidates should notify the board by letter and forward their fees. Exec. Sec., Dr. John B. Hubbard, 133 South 36th St., Philadelphia 4.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY: *Written.* July 15. Final date for filing applications was Jan. 15. *Oral.* New York City, Oct. 23-27. Sec., Dr. Curtiss B. Hickcox, 80 Seymour St., Hartford 15.

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: *Written.* Various centers, June 30. *Oral.* Washington, D. C., Oct. 14-16. Final date for filing application was March 15. Sec., Dr. B. M. Kesten, One Haven Ave., New York 32, N. Y.

AMERICAN BOARD OF INTERNAL MEDICINE: *Oral.* Portland, Ore., Sept. 14-16; Chicago, Nov. 30-Dec. 1. *Subspecialties, Cardiovascular Disease.* Chicago, Nov. 30. The closing date for acceptance of applications for gastroenterology was Feb. 1, and for cardiovascular disease the closing date is June 1. Exec. Sec., Dr. William A. Werrell, 1 West Main St., Madison 3, Wis.

AMERICAN BOARD OF NEUROLOGICAL SURGERY: *Oral.* New Haven, November. Oral examinations given in Spring and Fall. Final date for filing application for the Spring examination is October 1; for the Fall examination April 1. Sec., Dr. Leonard T. Furlow, Washington University School of Medicine, St. Louis 10.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Part II. Oral and Clinical Examination.* Chicago, May 11-20. Candidates who participated in the Part I examinations will be notified of their eligibility for the Part II examinations. Sec., Dr. Robert L. Faulkner, 2105 Adelbert Road, Cleveland 6.

AMERICAN BOARD OF OPHTHALMOLOGY: *Practical Examinations.* Philadelphia, May 27-30; Chicago, Oct. 9-14. Final date for filing application for 1955 practical examination was July 1, 1954. *Written.* January, 1956. Final date for filing application is July 1. Sec., Dr. Merrill J. King, 56 Ivie Road, Cape Cottage, Maine.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: Final date for filing application for the Part II examination to be given in January 1956 is Aug 15. Sec., Dr. Harold A. Sofield, 116 South Michigan Ave., Chicago 3.

AMERICAN BOARD OF OTOLARYNGOLOGY: *Oral.* Chicago, Oct. 3-7. Final date for filing application is April. Sec., Dr. Dean M. Lierle, University Hospitals, Iowa City.

AMERICAN BOARD OF PEDIATRICS: *Oral.* New York City, June 10-12; Chicago, Oct. 7-9; and Washington, D. C., Dec. 2-4. Admin. Sec., Mrs. John McK. Mitchell, 6 Cushman Road, Rosemont, Pa.

AMERICAN BOARD OF PHYSICAL MEDICINE AND REHABILITATION: Philadelphia, June 10-12. The final date for filing applications was March 1. Sec., Dr. Earl C. Elkins, 30 N. Michigan Ave., Chicago 2.

AMERICAN BOARD OF PREVENTIVE MEDICINE: *Certification in Public Health.* Kansas City, Mo., Nov. 10-12. Sec.-Treas., Dr. Ernest L. Stebbins, 615 N. Wolfe St., Baltimore 5.

AMERICAN BOARD OF PROCTOLOGY: *Part II.* Philadelphia, Sept. 17. Sec., Dr. Stuart T. Ross, 131 Fulton Ave., Hempstead, N. Y.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: San Francisco, mid-October; New York City, December. Sec., Dr. David A. Boyd, 102-110 Second Ave. S.W., Rochester, Minn.

AMERICAN BOARD OF RADIOLOGY: Chicago, Dec. 4. Final date for filing applications for the spring examination is July 1. Candidates who will complete their training by Dec. 31 will be eligible to appear for this examination. Sec., Dr. B. R. Kirklin, 429 First National Bank Bldg., Rochester, Minn.

AMERICAN BOARD OF SURGERY: *Part II.* Boston, May 16-17; Philadelphia, June 13-14. Sec., Dr. John B. Flick, 255 S. Fifteenth St., Philadelphia 2.

THE BOARD OF THORACIC SURGERY: *Written.* September. Final date for filing applications is July 1. Sec., Dr. Wm. M. Tuttle, 1151 Taylor Ave., Detroit 2.

MAGAZINE–TELEVISION REPORT

The following list of current medical articles in mass-circulation magazines and forthcoming network television programs on medical subjects is published each week only for the information of readers of THE JOURNAL. *Unless specifically stated, the American Medical Association neither approves nor disapproves of the articles and programs reported.*

TELEVISION

Sunday, May 15

NBC-TV, 10 p. m. EDT. "March of Medicine" reports on mental health in a live telecast from St. Elizabeths Hospital, Washington, D. C., New Jersey State Hospital, Trenton, and Manhattan State Hospital, New York. Presented in cooperation with the American Medical Association.

Monday, May 16

NBC-TV, 9 p. m. EDT. "Medic" features "Lifeline," a story of surgery aboard a hospital ship.

MAGAZINES

Town Journal, May, 1955

"Arthritis Is Meeting Its Match," by William Kitay

A report on the use of metacortandracin in arthritis. "Meticorten is about four times more potent than cortisone, thus permitting smaller dosage and lessening the chances of undesirable side effects. The greatest drawback to the use of cortisone, swelling produced by bodily retention of sodium and water, has not been experienced with Meticorten."

Successful Farming, May, 1955

"How to Get a Hospital," by Stan Geiser

Citing a community campaign in Madelia, Minn., as an example, the article tells how other communities can raise funds to build a local hospital.

Parade, May 15, 1955

"Good News: Atoms at Work—for You," by Oliver Townsend

As part of a general article on peacetime use of the atom, the secretary of Atomic Industrial Forum, Inc., describes current status of atomic medicine.

Collier's, May 13, 1955

"Breath of Life," by J. D. Ratcliff

"What can be done to prevent death and lifelong disability because of anoxia at birth?" The author cites precautions being taken by "more and more" obstetricians and reports on a new apparatus devised by Dr. George W. Corner Jr., obstetrician, Johns Hopkins Hospital, Baltimore. During delivery, it provides a continuous picture of the infant's heartbeat by means of a flashing red light.

Saturday Evening Post, May 7, 1955

"The Doctors Who Battle the Tropics," by Henry LaCossitt

The story of the University of Puerto Rico School of Medicine—newest medical school to receive accreditation by the American Medical Association and the American Association of Medical Colleges.

DEATHS

Neal, Josephine Bicknell ✠ New York City; born in Belmont, Maine, Oct. 10, 1880; Cornell University Medical College, New York City, 1910; specialist certified by the American Board of Psychiatry and Neurology; fellow of the American College of Physicians; an associate member of the American Medical Association; formerly clinical professor of neurology at the Columbia University College of Physicians and Surgeons, and on the faculty of her alma mater; assistant in meningitis division, bureau of laboratories, New York City Department of Health from 1910 to 1914, when she was placed in charge of the division; in 1937 became associate director of the bureau of laboratories of the New York City Department of Health; director of the William J. Matheson Survey of Epidemic Encephalitis from 1927 to 1929 and later executive secretary of the William J. Matheson Commission for Encephalitis Research; secretary of the International Committee for the Study of Infantile Paralysis from 1929 to 1932; in 1926 received an honorary doctor of science degree from Bates College, Lewiston, Maine, and in 1937 a similar honor from Russell Sage College, Troy, N. Y.; joint author of "Encephalitis: The Clinical Study"; contributor to Abt's "Pediatrics"; served on the staffs of the Vanderbilt Clinic, Willard Parker Hospital, and the New York Infirmary, where in 1953 she won an Elizabeth Blackwell Citation, and where she died March 19, aged 74.

Howser, John Paul ✠ Las Vegas, N. Mex.; born in Grayson County, Texas, Dec. 22, 1876; University of Texas School of Medicine, Galveston, 1913; fellow of the American Psychiatric Association; served in France during World War I; at various times neuropsychiatrist at Veterans Administration hospitals in Cincinnati, Dallas, Texas, St. Louis, and Alexandria, La.; retired as neuropsychiatrist at the Veterans Administration Hospital in Murfreesboro, Tenn.; at one time assistant superintendent of the Wichita Falls (Texas) State Hospital and the Big Spring (Texas) State Hospital; since 1950 superintendent and clinical director at the New Mexico State Hospital; died Dec. 14, 1954, aged 78, of coronary thrombosis.

Mauck, Henry Page ✠ Richmond, Va.; born in Richmond, Va., July 28, 1891; Medical College of Virginia, Richmond, 1913; professor and chairman of the department of orthopedic surgery at his alma mater; specialist certified by the American Board of Orthopaedic Surgery; member of the American Orthopaedic Association of which he was treasurer, Southern Surgical Association, and the American Academy of Orthopaedic Surgeons; member of the state board of health; served during World War I; member of the board of directors of Johnston-Willis Hospital, where he was chief of the department of orthopedics; chief of the department of orthopedics at Crippled Children's Hospital; died Jan. 22, aged 63, of coronary thrombosis.

Irwin, Charles Edward ✠ Billings, Mont.; born in Belle Plaine, Iowa, in 1890; University of Illinois College of Medicine, Chicago, 1918; formerly practiced in Cedar Rapids, Iowa, where he was county coroner; served as a member of the Iowa State Board of Health; a medical officer during World War I; formerly chief surgeon at the Iowa Soldiers' Home Hospital in Marshalltown, Iowa, and superintendent of the state hospital at Woodward, Iowa; in 1942 became associated with the War Relocation Center in Heart Mountain, Wyo.; affiliated with the Billings Clinic; died in the Albert Merritt Billings Hospital, Chicago, March 2, aged 65, of cancer of the prostate with metastases.

Alexis, Joseph A. ✠ Hazleton, Pa.; Jefferson Medical College of Philadelphia, 1919; served as vice-president and president of the Hazleton Branch of the Los Angeles County Medical Society; veteran of World War I; on the staffs of the Hazleton State Hospital and St. Joseph Hospital; died Jan. 30, aged 61, of cerebral hemorrhage.

Andrews, A. V. ✠ Corona del Mar, Calif.; University of Colorado School of Medicine, Denver, 1933; member of the American Academy of General Practice; served during World War II; died in Los Angeles March 31, aged 50, of coronary occlusion.

✠ Indicates Member of the American Medical Association.

Birnbaum, Richard ✠ Noble, Ill.; Medizinische Fakultät der Universität, Vienna, Austria, 1936; formerly associated with the Indian Service; died in St. Mary's Hospital in East St. Louis March 29, aged 44.

Boyer, Gouverneur Hammeken ✠ Lieutenant Colonel, U. S. Army, retired, Sarasota, Fla.; University of Pennsylvania Department of Medicine, Philadelphia, 1907; served during World War I; entered the regular Army in 1920; became a lieutenant colonel July 30, 1937; retired Nov. 30, 1938, for disability in line of duty; died Dec. 31, 1954, aged 73, of bronchopneumonia, encephalomalacia, and arteriosclerosis.

Carley, Paul Sterling, Manteno, Ill.; University of Illinois College of Medicine, Chicago, 1921; at one time associated with U. S. Public Health Service; psychiatrist at Manteno State Hospital; died Dec. 31, 1954, aged 56, of coronary thrombosis.

Carroll, Patrick M. ✠ New York City; Medical College of Virginia, Richmond, 1916; member of the Association for Research in Nervous and Mental Disease; died Dec. 24, 1954, aged 63, of cerebral hemorrhage.

Duncombe, David Alexander Columbus, Alma, Mich.; Detroit College of Medicine, 1907; died in the Michigan Masonic Home and Hospital Feb. 24, aged 92, of bronchopneumonia.

Dunklin, Frank Bumpass ✠ Lebanon, Tenn.; Vanderbilt University School of Medicine, Nashville, 1913; past president of the Wilson County Medical Society; served during World War I; during World War II a member of the Wilson County Selective Service Board; died March 6, aged 65.

Evans, Evan Morton, New York City; Columbia University College of Physicians and Surgeons, New York City, 1895; joined the faculty of his alma mater in 1899; retired in 1938 as professor emeritus of clinical medicine; consulting physician at the Englewood (N. J.) Hospital, Lawrence Hospital in Bronxville, N. Y., Vassar Brothers Hospital in Poughkeepsie, N. Y., and the Beth Israel, Roosevelt, and Babies hospitals; died March 17, aged 85.

Fetter, Earl William ✠ North Platte, Neb.; John A. Creighton Medical College, Omaha, 1909; served during World War I; died Jan. 29, aged 68, of arteriosclerotic heart disease.

Friend, John M. ✠ Lakewood, Ohio; Western Reserve University Medical Department, Cleveland, 1889; on the honorary staff of the Lutheran Hospital in Cleveland; died in the Lakewood Hospital March 11, aged 91, of arteriosclerotic heart disease with congestive failure.

Griffin, John Morse ✠ Des Moines, Iowa; Barnes Medical College, St. Louis, 1899; veteran of the Spanish-American War; served during World War I; associated with the Mercy and Iowa Lutheran hospitals; died March 27, aged 79, of chronic myocarditis.

Gunter, Clarence ✠ Globe, Ariz.; Columbia University College of Physicians and Surgeons, New York City, 1901; past president of the Arizona State Medical Association and the Gila County Medical Society; past president of the school board of trustees in Globe; district surgeon for the Southern Pacific Railroad; served during World War I; associated with the Gila County Hospital; died March 16, aged 76, of carcinoma of the stomach.

Hobbs, Arthur Fletcher ✠ Hinton, Okla.; Kentucky School of Medicine, Louisville, 1896; served during World War I; died in the Parkview Hospital, El Reno, March 12, aged 86.

Jackson, Reuben Wright ✠ Dallas, Texas; Medical Department of Tulane University of Louisiana, New Orleans, 1912; died Jan. 18, aged 65, of uremia and carcinoma of the urinary bladder with metastases.

Johnson, Ray George ✠ Bayport, Minn.; University of Minnesota Medical School, Minneapolis, 1924; died Jan. 14, aged 59, of coronary occlusion.

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Kelly, Allen Wilber, York, Pa.; Medical College of Virginia, Richmond, 1926; specialist certified by the American Board of Otolaryngology; member of the Medical Society of the State of Pennsylvania; on the staff of the Annie M. Warner Hospital in Gettysburg and the Hanover (Pa.) General Hospital; died in East Berlin March 2, aged 54, of coronary thrombosis.

Klein, George Anthony, Los Angeles; Loyola University School of Medicine, Chicago, 1916; died in Inglewood March 14, aged 77, of heart disease.

Lane, William Henry ✦ Angola, Ind.; Rush Medical College, Chicago, 1889; served overseas during World War I; for many years city and county health commissioner; associated with the Cameron Hospital, where he died March 2, aged 88, of carcinoma of the right testicle with widespread metastases.

Lytle, Charles Fred, Clinton, Iowa; College of Physicians and Surgeons, Keokuk, 1897; died in the Jane Lamb Memorial Hospital March 3, aged 80, of uremia, nephritis, and arteriosclerosis.

McMahon, Karl Cornelius ✦ Burlington, Vt.; University of Vermont College of Medicine, Burlington, 1922; assistant professor of clinical otolaryngology at his alma mater; served during World War I; appointed chairman of the Alcoholic Rehabilitation Commission in 1951 and continued to serve in that capacity until January, 1955; on the staffs of the Mary Fletcher and Bishop De Goesbriand hospitals in Burlington, and the Fanny Allen Hospital in Winooski; died March 2, aged 57.

Moss, George Hays, Frankston, Texas (licensed in Texas under the Act of 1907); member of the State Medical Association of Texas; died in Jacksonville Jan. 15, aged 79, of a heart attack.

Noecker, John McDonald ✦ Scranton, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1930; fellow of the American College of Surgeons; served overseas during World War II; on the staffs of Hahnemann, St. Mary's, Scranton State, and West Side hospitals; died March 30, aged 49, of coronary occlusion.

Norris, Leo Brison ✦ Washington, D. C.; Georgetown University School of Medicine, Washington, 1917; specialist certified by the American Board of Internal Medicine; formerly on the faculty of his alma mater; served during World War I; member of the Association of University Professors, Association of Military Surgeons of the United States, and the Georgetown Clinical Society; on the staffs of the Georgetown University, Doctors, and Garfield Memorial hospitals; died March 29, aged 62, of acute coronary thrombosis.

O'Neill, Martin Leo ✦ Jewett City, Conn.; Yale University School of Medicine, New Haven, 1930; served during World War I; medical examiner for the draft board during World War II; on the staff of the Backus Hospital in Norwich; died Feb. 25, aged 56, of carcinoma of the lung with metastases.

Orr, Warren Henry ✦ Seattle; College of Medical Evangelists, Los Angeles, 1927; certified by the National Board of Medical Examiners; member of the Association for the Study of Internal Secretions; author of "Hormones, Health and Happiness"; died in the Providence Hospital March 26, aged 53, of aneurysm of the abdominal aorta.

Penn, Alexander Robert, Dexter, N. Y.; L.R.C.P. of London and M.R.C.S. of England, 1947; served as a captain in the medical reserve corps of the U. S. Army; died in Sackets Harbor Dec. 7, 1954, aged 48, of injuries received in an automobile accident.

Powell, Leslie Charles ✦ Beaumont, Texas; University of Texas School of Medicine, Galveston, 1919; in 1951 vice-president of the State Medical Association of Texas; president of the school board; in the student military training corps during World War I; died in the Hotel Dieu Hospital Dec. 21, 1954, aged 60, of coronary occlusion.

Roberts, Frederick Walton ✦ Plymouth, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1897; an associate member of the American Medical Association; served on the staff of the Wyoming Valley Hospital in Wilkes-Barre; died Jan. 25, aged 78, of pulmonary neoplasm and coronary heart disease.

Rogers, Cecil Eccleston ✦ Hadley, N. Y.; Syracuse University College of Medicine, 1933; school physician and town health officer; on the staff of the Saratoga (N. Y.) Hospital and the Corinth (N. Y.) Hospital; died Feb. 12, aged 50, of acute coronary occlusion.

Ryden, Frank Alfred, Elsinore, Calif.; Bennett Medical College, Chicago, 1909; served during World War I; formerly on the staff of the Riverside (Calif.) Community Hospital; died in the Veterans Administration Hospital in Long Beach March 19, aged 80, of angina pectoris.

Smith, Leon Grant ✦ Montevideo, Minn.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1910; fellow of the American College of Surgeons; on the staff of the Montevideo Hospital; died Jan. 13, aged 67, of acute myocardial infarction.

Sparrenberger, Frederick Hessler ✦ Major, U. S. Army, retired, Seattle; University of the South Medical Department, Sewanee, Tenn., 1897; veteran of the Spanish-American War; entered the regular Army as a lieutenant Jan. 31, 1918; promoted to major April 6, 1929; retired Nov. 30, 1931, for disability in line of duty; died in the Swedish Hospital Feb. 5, aged 82, of uremia.

Sparrow, William D., Burgin, Ky.; Hospital College of Medicine, Louisville, 1905; died Feb. 17, aged 78, of uremia.

Tate, James Brooks ✦ Texarkana, Ark.; University of Arkansas School of Medicine, Little Rock, 1941; member of the American Academy of General Practice; on the staff of Texarkana (Texas) Hospital and St. Michael's Hospital; died March 17, aged 45, of coronary occlusion.

Thomason, Louis Marion, New Orleans; Medical Department of Tulane University of Louisiana, New Orleans, 1906; died Jan. 16, aged 84, of coronary occlusion.

Thompson, Charles Clifford Sr. ✦ Columbia, Miss.; Medical Department of Tulane University of Louisiana, New Orleans, 1904; director of the Marion County Health Department; died March 14, aged 74, of cerebrovascular accident.

Van Meter, Abram Lee ✦ San Francisco; Harvard Medical School, Boston, 1913; an associate member of the American Medical Association; served during World War I; for many years practiced in Stockton, Calif., where he was team physician for high school athletic squads; died in the Stanford University Hospital March 28, aged 68, of acute myocardial infarction and hypertension.

Vestal, Earl Alex, Quanah, Texas; University of Texas School of Medicine, Galveston, 1931; past president and secretary of the Hardeman Cottle-Foard-Motley Counties Medical Society; died Jan. 14, aged 48, of coronary occlusion.

Walker, William Herbert ✦ Robards, Ky.; Louisville (Ky.) Medical College, 1897; formerly on the staffs of the Providence and Bethany hospitals, Kansas City, Kan.; died Feb. 9, aged 80, of carcinoma.

Watson, Edmund Chitwood ✦ Roanoke, Va.; University College of Medicine, Richmond, 1898; on the staff of the Shenandoah Hospital; a director of the Mountain Trust Bank; died Feb. 22, aged 79, of heart disease and leukemia.

Wright, Ada V. Antrim ✦ Columbus, Ohio; Ohio Medical University, Columbus, 1906; died in the University Hospital March 2, aged 82, of leukemia.

Yeakle, Walter Atwood ✦ Norristown, Pa.; Jefferson Medical College of Philadelphia, 1913; veteran of World War I; died in the Veterans Administration Hospital, Philadelphia, Jan. 28, aged 67, of benign prostatic hypertrophy and carcinoma of the bladder.

Young, Justin John ✦ Cleveland; Creighton University School of Medicine, Omaha, 1915; member of the Cleveland Academy of Medicine; on the staff of the Evangelical Deaconess Hospital; served during World War I; died in Rocky River March 27, aged 64, of coronary occlusion.

Zoller, Sherwood Benjamin ✦ Fredericksburg, Iowa; the Hahnemann Medical College and Hospital, Chicago, 1905; for many years county coroner and public health officer; on the staff of St. Joseph's Hospital in New Hampton; died Feb. 23, aged 70, of renal cardiovascular disease.

FOREIGN LETTERS

AUSTRIA

Vesicovaginal Fistula.—At the meeting of the Society of Gynecologists and Obstetricians in Vienna in December, 1954, Dr. H. Kraul reported the case of a 29-year-old woman who delivered an infant on Sept. 1, 1953, after six days of labor. The woman was first admitted to the hospital with a ruptured amniotic sac on Aug. 26. The diagonal conjugate diameter of the pelvic inlet was 12 cm. Despite all ecbolics, the uterine activity during labor pains was weak, and high forceps were applied. Since the delivery could not be accomplished because of asphyxia of the fetus, low forceps were used. Two lacerations of the cervix were sutured. The vesical region showed a hemorrhagic infarct. Although injury to the bladder sustained in the course of delivery heals spontaneously in most patients, this did not occur in this patient. She was readmitted to the hospital on Sept. 23 for a wide vesicovaginal fistula. There was a circular avulsion of the entire urethra from the bladder, so that the catheters could be introduced into the openings under direct vision without the use of a cystoscope. The first operation on the fistula was performed on Oct. 23. The urethra was reimplanted into the bladder in an attempt to close both fistular openings. An artificial sphincter was produced. Healing occurred, but there was a residual fistula, the thickness of a quill. The patient was discharged on Nov. 30 but was readmitted on Jan. 14, 1954, at which time there was a fistula at the level of the internal urethral orifice. The fistula was closed, and a plastic operation of the bulbocavernosus muscle was performed. The patient was discharged on Feb. 13. The fistula became smaller, but healing did not occur. On June 9 the patient was readmitted with a recurrence of the vesicovaginal fistula. The fistula was closed with a unilateral plastic operation of the pyramidalis muscle. The patient was given daily injections of pantothenol, made a good recovery, and was discharged on July 5. The case is peculiar because of the circular avulsion of the urethra, either by the high or the low forceps. Healing did not result from interposition of the uterus after the plastic operation on the bulbocavernosus muscle. Only the plastic operation on the pyramidalis muscle was effective. The speaker has successfully used this method on 37 patients for repair of a fistula or refractory incontinence of urine. Pantothenal should be used in all patients with vesical fistulas.

Internal Secretion of the Placenta.—At the same meeting Dr. H. Knaus stated that estrogenic substances are produced by the syncytium of the placenta. These estrogens lead to the hypertrophy of the uterine muscle without which delivery would be impossible. The onset of labor is regulated by hormones. It is possible to shorten or to prolong the pregnancy of the rabbit at will by changing the hormonal conditions that cause the onset of labor. Dr. H. Husslein also believes that the placenta is an organ of internal secretion but admits that it is hard to understand how one or two cell types can produce so many different active substances. There is a parallelism in the anterior lobe of the pituitary. Here two cell types are known to produce six active substances. The fact that, in cases of definite intrauterine death of the fetus, the level of the follicular hormone decreases rapidly in contrast to the chorionic gonadotrophin, although labor does not start until much later, does not support the concept that labor pains are elicited by hormonal action. Concerning the corpus luteum hormone it is important to determine whether, in certain forms of habitual abortion in which progesterone may play a part, there is an insufficiency of the corpus luteum or a faulty development of the placenta with insufficient synthesis of progesterone. There is no significant difference between the chorionic gonadotrophin and that of pituitary origin; the difference in the effect, which in fact is present, could result from varied proportions of the fractions (FSH, LH, and LTH).

Dr. R. Joachimovits said that there may be a relationship between disturbances of menstruation in puberty and after puberty associated with a large, gray ovary and an injury to the fetal ovary associated with toxicosis of pregnancy in the mother. This cause-and-effect relationship, for which there is much evidence, may explain some disturbances that previously were considered as a sequel of a weakness of the ovary corresponding to the anlage and depending on an injury of the fetal ovary. The finding of multiple false corpora lutea in the ovary of newborn infants of women who had toxicosis of pregnancy probably favors the assumption that the lesion may have been caused by the enormous amounts of chorionic gonadotrophin associated with this toxicosis, since corpora lutea of the demonstrated type, i. e., built like a crystal rosette, are rare in man and may be seen only during pregnancy, and then only in rare cases. Except for pregnancy, the theca-lutein cells in man never reach such a high stage of development. The chorionic gonadotrophin, which in normal pregnancies is produced in large amounts and directly or indirectly causes the processes of luteinization, is the same substance as that which is responsible for the origin of such corpora in the ovaries of the mother and the newborn infant, particularly if in toxicosis more or further developed corpora of this type are found. The chorionic gonadotrophin cannot, however, be the only substance that causes the formation of such thecal bodies, because such false corpora lutea may be found frequently and often in larger numbers in the ovaries of many pregnant and nonpregnant animals, and even in animals that do not produce any chorionic gonadotrophin. Perhaps a hormone of the anterior lobe of the hypophysis may be the causative substance, but Dr. Joachimovits does not believe that the gonadotrophin of the anterior lobe of the hypophysis is identical with the chorionic gonadotrophin.

The items in these letters are contributed by regular correspondents in the various foreign countries.

BRAZIL

Osteoarticular Tuberculosis.—Dr. E. B. Fusco, of the São Paulo State University Hospital (*Rev. Hosp. clín.* **9**:413, 1954) reported a statistical study of 230 patients with tuberculosis of the bones and joints treated at the hospital between April, 1944, and January, 1953. In this series 23.9% were from birth to 4 years old; 12.2% were 5 to 9; 25.2% were 10 to 19; 16.9% were 20 to 29; 10.9% were 30 to 39; 7.9% were 40 to 49, and 3% were 50 to 59. This shows that the frequency decreases as the age increases. The anatomic locations were distributed as follows: 37.4% were in the spinal column; 26.1% in the knee; 19.1% in the hip; 3.9% in the wrist; 2.2% in the shoulder; 1.8% in the ankle; 1.8% in the foot; and 7.7% in miscellaneous bones and joints. The increased frequency of lesions in the knee over those in the hip is at variance with reports from the United States, France, Italy, and England.

Liver in Eclampsia.—At a meeting of the Associacão Paulista de Medicina Drs. L. Wajchenberg and E. P. Campos reported on the organic changes in the brain, kidney, and liver in patients with puerperal eclampsia. Necroses with local hemorrhage, sometimes confluent, occur in the liver. The visceral alterations depend on vascular changes that, in the liver, are characterized by hyalinosis. The authors referred to the findings of Knisely in relation to the type of ramification of the intraparenchymatous portion of the hepatic artery, confirming the classical ideas about the physiopathology of eclampsia. Frequently, the lesions do not modify the characteristic clinical findings of the gestosis. The authors stressed the rarity of the nonconvulsive type of eclampsia, which is manifested by a heterogeneous assortment of clinical findings. In this assortment, they tried to single out a group, not yet reported in the literature, which they called "eclamptic hepatic coma," with the lesions of eclampsia and the clinical findings of a severe hepatic insufficiency. The authors presented two cases clinically diagnosed as hepatic coma of undetermined cause, in two women at the third and the sixth

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months of pregnancy. Both had marked hepatomegaly and one had a hemorrhage. The illness was of short duration (less than two weeks) and began in an inexplicable manner. From the laboratory standpoint, the characteristics were hypoglycemia, hyperphosphatasemia, and small changes in the hepatic function tests related to protein metabolism, confirmed in one of the patients by the fact that electrophoresis of the plasma proteins showed a marked decrease of the albumins and the gamma globulins and a normal fibrinogen. The simultaneous fall of the albumins and gamma globulins could explain the alteration of Hanger's test and the thymol turbidity. Although an increase in fibrinogen is commonly described in such patients, none was observed in the two reported.

Cholemic Renal Diseases.—The cholemic renal diseases represent one of the more serious and difficult problems of internal medicine because of their obscure physiopathology and pathogenesis and the severity of their clinical findings. To the clinician as well as the pathologist these diseases form perhaps the most nebulous and trying of the hepatorenal syndromes. As a contribution to a better understanding of this question, Dr. Flavio San Juan, of the Rio de Janeiro Hospital dos Servidores, in (*O Hosp.* **46**:221, 1954) reported eight cases of cholemic renal disease in a series of 665 autopsies performed at that hospital between December, 1947, and July, 1953. In seven of the eight cases the renal lesions coincided with hepatitis, and in one they were the result of cholangitis with microabscesses of the liver. Forty were reported as hepatitis (acute, subacute, and chronic), and of these seven had kidney diseases of the cholemic type. The microscopic study of the tissues of the eight cases showed biliary casts in the distal tubules in six cases, normal glomeruli in six, tubular degeneration in six, tubular necrosis in two, glomerulitis in two, focal interstitial infiltration in two, tubular necrotic block in one, and tubular regeneration in one. About 55% of the patients were men, and about 75% were over 20 years of age (average 44.1 years). Aminoaciduria was observed in 22.2% of the cases and lipiduria in 11.1%, but biliary casts were never observed in the urine. These are the only indexes with diagnostic and prognostic value. The diagnosis of cholemic renal diseases is only possible when there is hepatic or post-hepatic icterus with concomitant infection, or a cholangiolytic syndrome after an extrahepatic biliary operation with the clinical findings of a nephropathy succeeding the icterus, or a urinary syndrome characterized by aminoaciduria, lipiduria, and the presence of biliary casts.

ENGLAND

Housing and Health.—Drs. Ferguson and Pettigrew have examined the housing conditions of families in Glasgow to see if there is any correlation between health and living conditions (*Glasgow M. J.* **35**:169, 1955). They studied the circumstances of 388 families living in old slum property and compared them with those of 718 families who had formerly lived in old slum houses, but who had been rehoused for several years in better surroundings. Although it was hoped to compare the results obtained with the two sets of families and examine the differences, strict comparison was not altogether possible as the average age of the rehoused population was much greater than that of the slum dwellers. The slum population investigated consisted of young families who were largely victims of the housing shortage; they were unable to get any better accommodation in which to live in the early years of their married life. Poverty, except in the case of older people, was not the reason for living in the slums, because many of those who live there are hard-working, often skilled or semiskilled, operatives in regular employment. The number of adults classified as having good health was greater in the slums than in the new houses. This was attributed to the difference in their ages. The level of nutrition and the feeding habits were no better in the rehoused than in the slum population, and the death rate in the children of the two groups showed no significant difference. Juvenile delinquency was greater in the slums. Slum life would, therefore, appear to have a greater social than physical impact on young people. The authors concluded that slum families require help and encouragement to make the transition from the slums to a new life under better housing conditions. These findings are contrary to those observed before the war when it was found that when slum dwellers were moved to housing estates their health suffered, because they spent less on food owing to the increased rent and commuting expenses. This explanation no longer obtains, now that rehoused families have a greater financial margin due to the general rise in wages and purchasing power of the lower class family.

Aids for the Disabled.—The British Red Cross Society held an exhibition in the last week of February to illustrate inexpensive but effective aids for use by disabled persons. Many of these aids are so simple that they can be made at home, or at any rate in a small workshop, and they make the difference to the patient of being able and being disabled. For example, there were long-handled combs, tooth brushes, and even lipsticks for those who are unable to raise their arms through the full range of movement. Such devices are of great value to arthritic women unable to perform their toilet with the usual articles. A device for pulling on stockings for those with limited flexion of the spine was also exhibited. A minor but exasperating handicap is loss of a firm grip, which can be compensated for by padding the handles of objects to be gripped with cotton and binding with adhesive tape. Patients with a defective grip can open doors by wearing corrugated rubber mittens. Although one-armed persons acquire great facility with the remaining arm, they cannot use two hands and any simple device to compensate for the missing arm is welcome. A universal tool, a playing card holder, and a knitting machine were also shown. There was also a device for turning pages and projecting a page on a nearby screen for patients unable to sit up. Plastics and light alloys were used in the construction of many of the light-weight but efficient appliances.

Acquired Toxoplasmosis in Britain.—Toxoplasmosis is a rare disease in Britain. Beverley, Skippen, and Marshall, of the University of Sheffield, record a case of toxoplasmosis acquired in the laboratory (*Brit. M. J.* **1**:377, 1955). A technician in the bacteriological laboratories at the University of Sheffield accidentally pricked his finger with a needle attached to a syringe filled with mouse peritoneal exudate containing the Rh strain of toxoplasma. Nine days later he became tired, shivered, suffered from headache, and complained of axillary adenitis. This was followed by rigors and adenitis in the posterior triangle of the neck, and a blood film showed many abnormal lymphocytes, resembling Downey cells types 1 and 2. The toxoplasmin skin test and complement fixation test were strongly positive, and the dye test of Sabin was positive at a titer of 1:4,200. Tests for other infections were negative. This is the first recorded case of acquired toxoplasmosis in Britain.

Carcinogenetic Action of City Smoke.—It has been argued that the increased incidence of lung cancer may be due to factors other than excessive smoking, and carcinogens in city air have been postulated, although their presence has not so far been demonstrated. Clemo and Miller have now shown the presence of carcinogens in city smoke and diesel omnibus smoke (*Chemistry and Industry*, vol. 38, 1955). The solid deposit from the air of an industrial city was extracted with solvents and the extract painted on the skin of mice. Papillomata appeared after 6 to 12 months in 12 of 29 mice so treated. Five of the 29 mice had nodules in the lungs. Under similar conditions the carcinogen benzopyrene produced tumors in 50% of mice treated with it. An extract of the deposit from the exhaust of a vehicle burning diesel oil gave a positive result in one mouse only; nodules developed in its lung. It would thus appear that city smoke has a marked carcinogenetic action.

Mercury and Pink Disease.—A verdict of accidental death from pink disease was recorded for an 11-month-old baby at a coroner's inquest at Stoke-on-Trent on Feb. 22. The coroner said that death was due to legally prescribed "grey powders" (hydrargyrum cum creta) and not to the teething powders prescribed. These have recently fallen under a cloud because many of them, which are obtainable on demand at drug stores, contain mercury and have been suspected of causing pink disease. The child had been well until November, 1954, when it had teething trouble, and the father bought some proprietary teething powders,

which were shown by the analyst to contain no mercury. On Jan. 13 the family physician prescribed 12 tablets of hydrargyrum cum creta because the child had a digestive upset and was irritable. The mother gave two of these a day for the next six days in accordance with instructions. The baby did not get better, and on Jan. 26 it was taken to the hospital, where a diagnosis of pink disease was made. On Feb. 2 it died. At autopsy the liver showed fatty degeneration, there were granular casts in the kidney, and the lungs were congested. Analyses by the West Midland Forensic Science Laboratory showed the presence of 500 mcg. of mercury in a specimen of kidney and large quantities in other organs. The pathologist considered that death was from pink disease due to the ingestion of mercury.

Nurses' Pay Increase.—The industrial court has awarded an increase in salary to nurses and midwives employed in the National Health Service by hospital and local authorities. Their present salary is to be increased by $70 a year, and assistant nurses receive an increase of $56 a year. The award, which is retrospective to Dec. 1, 1954, will cost the Ministry of Health $11,200,000 a year, but as the nurses' board and lodging charges are to be increased, and as $12 of the $70 is tax, the purses will receive little benefit from it.

GERMANY

Physicians in Germany.—It is difficult to determine the optimal number of physicians for a certain country. The question arises: Does the number of physicians exceed the demand for medical service? In the Federal Republic of Germany as a whole it does not. Does a given community expect to pay for a medical service its members can afford? Apparently a marked disproportion between the request for medical care and the money that people will pay or may spend for it is the real cause of the overcrowding in Western Germany. To compare the figures with other countries, the number of physicians per 10,000 population in the Federal Republic is 14; it is 13.5 in the United States, and 13.1 in Great Britain. The number of physicians increased in Germany from 3.4 per 10,000 inhabitants in 1880 to 14 in 1953. In Germany most physicians attribute the overcrowding to the immigration of medical refugees from Eastern Germany and the great number of students forced by the Hitler government into the study of medicine. Recent statistics, however, reveal that among the refugees immigrating to Western Germany there were only 12.7 physicians per 10,000. Immigration from Eastern Germany included only 2,800 physicians, but as they are permitted to participate in sick-funds panels they block the settlement of many young West German physicians. The most important cause of the overcrowding is due to the large number of physicians who began to study at the end of the last war and during the first years of the postwar depression. Two years ago, 30,139 of the more than 70,000 physicians in Western Germany were employed by sick-funds, 4,069 had no sick-funds patients, 28,867 worked in hospitals, 4,543 were unable to practice or were employed in other professions, and 3,774 were engaged in research or governmental medical service.

Poliomyelitis Vaccine.—A trivalent-active vaccine against poliomyelitis has been developed by Prof. R. Haas of Behringwerke, Marburg (*Deutsche med. Wchnschr.* **80**:283, 1955). More than 1,000 persons, including about 500 children, have already been vaccinated. Though vaccination with living viruses probably would produce a more effective immunity, until now only inactivated viruses have been used because it is not yet possible to control the degree of the virulence. The vaccine of the Behringwerke is cultivated, following Salk's method, on tissue cultures of renal epithelial cells of monkeys, the nutrient being the synthetic sample of Morgan, Morton, and Parker. To increase the immunizing effect of the antigen, Haas has added a fixed amount of aluminium hydroxide. The serum of the experimental monkeys has developed a marked capacity for neutralizing all poliomyelitis strains after two injections of the antigen. In the Behringwerke vaccine, formaldehyde and heat are used to inactivate the viruses. The inactivation is tested according to the minimum requirements of the United States Department of Health, Education, and Welfare in living monkeys and in tissue cultures of renal epithelial cells of men and monkeys.

INDIA

Medical Education and Medical Care.—Dr. Raja of the Ministry of Health stated in the *Journal of the Indian Medical Association* that greater correlation is needed in the teaching of clinical and preclinical subjects both at the undergraduate and postgraduate level and that students should be educated in the social, economic, and environmental conditions of the patients by participation in the home-care program. Education should stimulate the student to learn for himself. A greater emphasis is being placed on social pathology so that the student can better understand the psychological background underlying the patient's symptoms. Because statistical analysis is an important tool in medical research, the elements of statistics should be taught in medical schools. In India poverty continues to be a major problem, and over 85% of the population is distributed in rural areas. In 1946 the Bhore Committee reported on different aspects of medical relief. In order to encourage recent graduates to settle in rural areas they proposed a government subsidy. As this did not solve the problem, an amendment was proposed advocating full-time medical officers for rural areas. It was hoped that such officers would attend both the preventive and curative aspects of disease. The government has recently introduced a special medical service for workers under the Employees' State Insurance Act. Under this act full-time medical officers have been made available to all workers, although in the larger cities the panel system has been introduced. This system uses the part-time services of private practitioners, mainly because of lack of sufficient funds to pay for full-time services. At present the Insurance Act covers only the industrial worker, but already there is a move to include all his dependents. Soon agricultural laborers will also be included in this act. This would bring 80% of the population under the provisions of the act. These moves aim at providing better medical care for the poorest citizens. The Indian medical council has recommended that every medical student, before he is licensed, should be trained in a rural center.

Control of Conception.—Dr. C. Chandrasekharan in a report to the United Nations World Population Conference held in Rome, Italy, in September, 1954, on the fertility trend in India said that an organized project with a view to establishing birth control clinics and educating the public on methods of birth control is necessary because of the high birth rate and scarcity of natural resources. The ideal method should be harmless, cheap, esthetically acceptable, practicable by the uneducated, and without any permanent effects on potency and fertility. No method possesses all these attributes. Governmental restriction of births is not without dangers, for Russia and Japan have tried this and have even legalized abortions with unhappy results. In Japan the birth rate decreased by almost 40% in the last five years and the legally authorized abortions have increased from 200,000 to over a million a year in the same period. Vasectomy for men has not been adopted by the government because it might predispose to promiscuity. Tubal ligation may have adverse effects on women, and at present operative methods of contraception are recommended only for the prevention of certain hereditary diseases. In general the creation of an enlightened public opinion is likely to be more effective than legislative measures.

Prevention of Food Adulteration.—At the ninth Madras State Medical Conference held at Madurai, Dr. Annamalai said that the adulteration of milk in certain parts of South India is a matter of great concern because it is the main food of growing children, and it is easy to circumvent the law. The manufacture and sale of adulterated ice cream was especially condemned because it is so popular with school children. Public opinion must be aroused before effective enforcement can be expected.

Prevention of Tuberculosis.—Although great progress has been made against tuberculosis, it is still a serious public health problem. A nation-wide campaign has been lodged for the use of BCG vaccine. Sanatoriums for the treatment of tuberculous patients have been multiplying rapidly. Schemes have already been devised to provide special outdoor work for these patients such as poultry farming, gardening, and dairying.

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CORRESPONDENCE

HEMODYNAMIC ASPECTS OF EXERCISE TOLERANCE TEST

To the Editor:—Electrocardiographic examination before and after exercise is now a standard procedure in the study of patients with myocardial and coronary disabilities. Experience over the past 15 years has shown that the electrodynamic pattern may change remarkably after effort in certain individuals who have a marginal cardiac reserve; insofar as muscular work produces a relative anoxic phase in myocardial metabolism, associated electrocardiographic changes may occur. The interpretation of these changes have, however, been a matter of some debate. Where the exercise test has been standardized, clinical correlation of the results have generally been satisfactory in the hands of experienced examiners. A number of these tests are in use; the Wolffe ergometer; Parsonnet's stationary bicycle; Sussman's weight-lifting device; my own stairway treadmill, which was used in the medical department of the Navy during World War II—all permit a definitive amount of work to be performed. The stair-climbing test, in which the patient's weight is used, with the height of the stairs climbed to equal 10,000 foot-pounds of work, is perhaps the simplest and most easily available of the entire group. The Master two-step test is a modification of the stair-climbing procedure now in wide use.

Changes in the electrocardiographic pattern after effort are chiefly concerned with ST-segment and T-wave alterations; the changes may sometimes be seen in all leads, but ordinarily leads 1, 2, aVr, aVf and V_4 are most responsive. A drop in the ST segments and a lessening of the T-wave voltage occurs; flattening and negativity of the T wave is found in some patients. Less common are delays in conduction time, particularly of the QRS complex; premature contractions occasionally develop after the exercise test. Return to the preexercise electrocardiographic pattern is an important part of the test that is frequently omitted. After a resting period of three minutes most abnormalities disappear, but longer periods of observation are some times necessary in evaluating the mechanism responsible for the electrodynamic changes. In some clinics a 5 minute, 10 minute, and a 20 minute postexercise tracing is made; the time required for restoration to the preexercise pattern may vary in different leads and particularly in the ST segments and T waves. Unless the test is completely and carefully performed such data may be lost. Much debate about the validity of the test is due, I believe, to hasty procedures and incomplete postexercise tracings.

One of the almost forgotten aspects of the exercise tolerance test is the hemodynamic response to effort; Burton-Opitz as long ago as 1934 pointed out that blood pressure, blood velocity, and cardiac output, as well as pulse rate, change considerably after exercise. Since 1945, I have been recording arterial curves synchronously with the electrocardiogram in the exercise tolerance test; pulsations from the radial, temporal, and dorsalis pedis arteries of both feet are taken routinely before and after the test together with the electrocardiogram. Various expensive and complicated electronic gadgets are available for the registration of these curves, but I have found that the simple gelatine capsule with a Cambridge wave recorder produces satisfactory graphs. After the standard exercise tolerance test, i. e., 10,000 foot-pounds of work, the arterial curves may show several significant changes; the most important of these is pulsus alternans. Since many authors consider pulsus alternans to have a serious prognostic import, its development after exercise should carry the same clinical significance as abnormal electrocardiographic changes. In my experience, confined perhaps to about 1,500 synchronous electrocardiographic and arterial wave examinations before and after exercise, pulsus alternans has occurred as frequently without electrocardiographic changes as with recognizable abnormalities. When both have occurred together, the outlook seems to worsen; in a limited follow-up of such patients, most have died within a year. Electric alternans is said to be infrequent after the effort test; I have not seen any in my series. The combination of both electrodynamic and hemodynamic alternans after exercise must be an exceedingly rare occurrence.

Lengthening of the upstroke of the arterial wave after the test is also found; insofar as the upstroke is a measure of left ventricular emptying time, any appreciable delay suggests functional insufficiency of the heart muscle under strain. The normal time factor averages from 0.070 to 0.085 second; in certain patients with myocardial and coronary disability a delay to 0.115 second may occur after the test. In one patient the time interval went from 0.082 to 0.125 second, with a restoration period that required 90 minutes; there were no associated electrocardiographic changes in this instance, and the test might have been considered "negative." The basic pattern of the arterial curve may change after exercise; the atrial wave may disappear or increase in amplitude. The various notches on the descending limb may also disappear, change in contour, or increase in number. The clinical significance of these posteffort changes is not known, except that they do not occur in the well-compensated heart. These changes when they develop must be evaluated with other hemodynamic alterations after exercise.

The hemodynamic response of premature contractions may have some clinical importance; when they develop very early in diastole and before minimal expulsion pressure can be effected in the left ventricle, no arterial wave occurs. Such extrasystoles have been termed "ineffective" in that the heart has made a contraction without securing the benefit of a propulsion wave. If the premature beats of this type are very frequent, an uneconomic rhythm develops. Changes in the pattern and time factors of the arterial wave after the exercise test may thus equal in importance the changes seen in the electrocardiogram. In this connection it is interesting but perhaps not unexpected that ballistocardiographic changes after exercise when they occur follow the frequency curve of hemodynamic change rather than electrodynamic. Mann's capacogram also follows the same tendency.

In summary, this note is written to call attention to an almost forgotten aspect of the exercise tolerance test; undue emphasis upon the electrocardiographic changes that occur have caused many clinicians to overlook the informative data that can be secured from a simple study of a given arterial pulse wave that can be obtained synchronously with the electrocardiographic tracing. A slight change in technique will improve the validity of the test almost 35%. Where the electrocardiographic changes are equivocable, positive hemodynamic alterations will tend to confirm the significance of the test. When there are no electrocardiographic changes and an important abnormality like pulsus alternans develops, the test may serve to prevent those embarrassing sudden deaths that occur from time to time after the so-called negative Master test.

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TUBERCULOSIS

To the Editor:—The editorial in THE JOURNAL for Feb. 5, page 512, that comments on the prevalence of tuberculosis in large cities seems to me to stress an important factor that is developing before our eyes. The truth is, it is a problem in the smaller areas and rural communities as well as in the large cities. It seems that physicians have a tendency to forget the fact that tuberculosis is an infectious disease and that the prolonged periods a patient spends at home during the stages of his active disease threaten the health of the members of his family and community. Someone commented recently that "tuberculosis is not as catching as it used to be," meaning of course that he was encountering fewer cases of the disease. The way some of us are allowing the patient with active disease to remain at home with his family causes one to wonder whether such a philosophy as stated in the quote above may not have a certain following.

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General Administration Office
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SIMPLIFIED INSURANCE FORMS

To the Editor:—The article "Simplified Insurance Claims Forms" in the Feb. 12 issue of THE JOURNAL, page 614, is certainly commendable. I agree with this program and know it has genuine merit. The varying complexities of filling in these forms has forced us to take an additional major step in their simplification. Too much emphasis has been placed in the past on the printer's eye appeal. They have laid out this form to produce a balanced effect. But, with skilled secretaries at a premium today, we must take into account means and methods of reducing their work. At the present pace, forms of this type force us to add help rather than reduce it. I find the form GS-1 shown in THE JOURNAL, Feb. 12, page 614, can be filled in faster by the secretary if it is revised to conform with the sample below. The illustrated example can be more attractive in finish if it is printed rather than mimeographed. It merely gives an opportunity to grasp the thought more readily.

ATTENDING PHYSICIAN'S STATEMENT

Medical Clinic of Rockford
2300 North Rockton Avenue
Rockford, Illinois

.....
.....Patient's name and address (1)
.....Age
.....
.....Company Name and Address (2)
.....
.....Group Insurance Name and Address (3)
.....
.....Nature of Surgical or Obstetrical Procedure (Describe fully). (4)
.....
.....Date and Charge for this Procedure
.....Where performed? If in Hospital, as "In" or "Out" Patient?
.....Was Procedure due to Pregnancy? "Yes" or "No." (5)
.....If "Yes," what was approximate date of Pregnancy?
.....Is further operative procedure anticipated? "Yes" or "No"? (6)
.....If "Yes," explain.
.....Was surgery due to injury or sickness arising out of Patient's employment? "Yes" or "No." (7)
.....If "Yes," explain.
.....
.....Remarks
.....
.....
.....M.D. (Signed)
.....Phone
.....Date
I hereby authorize payment directly to
.....
Print—Name of Surgeon
.....Date
.....(Signed)
Insured Employee

I hereby authorize the Medical Clinic of Rockford, Rockford, Illinois, to furnish to the above named insurance company all information which said company may request concerning my present injury.

.....Date
.....(Seal)

Typewriters have a standard left-hand margin, and we have always neglected its purpose in the past. If we made these forms to produce results from the standard setting, we would accomplish efficiency to a more appreciable degree. We have run time tests on both forms filled in with the same contents and repeatedly find the "reversed printed" form typing time reduced by 40 to 50%. Along with this saving on time, we did not fail to consider the enlightened morale effect. The secretary has a distasteful attitude toward filling in insurance forms under the old method but now finds its simplicity is more attractive. The idea of this form is accomplishing a smooth performance when the secretary inserts it into her typewriter. A left-hand margin is always her base point, with subsequent questions ready to be answered at each stroke of the typewriter carriage lever arm. The printed form such as the GS-1 wastes much more than time in seeking the location of the question to be answered, which invariably is spread out throughout the form. Wasted motion and cost is effected beyond necessity with the old type form.

J. L. TERRANOVA
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2300 N. Rockton Ave.
Rockford, Ill.

REACTIONS FOLLOWING USE OF NASAL DECONGESTANTS

To the Editor:—In THE JOURNAL for March 26, 1955, page 1153, were two letters under the heading "Reactions Following Use of Nasal Decongestants." As the letters deal almost exclusively with tetrahydrozoline (Tyzine), a product that I have found both highly effective and without adverse reactions in patients of all ages (Parish, F. A.: *Med. Times* **82**:917 [Dec.] 1954), I should like to offer a few comments that may answer some of the questions that these letters will surely raise.

I am pleased to note that Dr. Greenstein's well-informed letter makes clear the need for avoiding overdosage in treating infants with any nasal decongestant. In fact, the appearance of his letter in THE JOURNAL is most timely and should further the efforts being made by the manufacturers of Tyzine to inform all physicians of the possibility of soporific effects in infants treated with the nasal drops or spray. These efforts began in November, 1954, about three weeks after Tyzine was made commercially available. Although the introduction of the product was proceeded by extensive clinical trials (in about 2,000 patients), no instances of reactions were observed until three weeks after its commercial availability. The absence of reactions in the preliminary studies can probably be accounted for by the care taken by me and other investigators to provide our patients with explicit instructions with regard to dosage, manner of administration, and precautions in the use of the new drug. From correspondence with the manufacturers, I have been informed that, when instances of soporific reactions were first reported by several practitioners, the company immediately prepared a letter that was mailed to all physicians in order to make known as widely as possible that varying degrees of sedation had been observed in some of the infants treated with Tyzine. Statements of caution in this regard, and dosage instructions designed to avoid such reactions so far as possible, were included in their package circular. In his letter, Dr. Greenstein points out that the instructions included in packages of both Tyzine drops and spray do give due recognition to the advisability of careful dosage and the possibility of soporific effects in infants.

Dr. Friedman's letter has the merit of emphasizing the necessity for following instructions carefully when using potent medicaments. His statement to the effect that each squeeze of the bottle expels at least 1 cc. of solution can undoubtedly be dismissed as based on measurements that ignore a point emphasized in the package literature: Both the patient and the bottle must be upright for the administration in order to avoid pouring the solution as a stream. Instructions in this regard are included in the package insert and are printed on a portion of the label that remains affixed to the spray bottle when dispensed to a patient. When the bottle is used according to these instructions, three squeezes deliver no more than 0.1 cc.—only a 10th of the amount that Dr. Friedman reports is delivered by one of his squeezes. On communication with the manufacturers, I have been informed that they have carried out repeated tests under rigid control conditions in order to determine the amount of solution expelled when the bottle is correctly held and squeezed, in the manner described in their labeling. The manufacturers report that, during the six months that Tyzine has been commercially available, over 500,000 unit packages (spray bottles or bottles of solution for use as drops) have been distributed. Although this figure indicates that the drug has been widely used by a large number of patients, they have received reports of the soporific reaction (confined almost entirely to infants) in only 100 to 125 patients. Moreover, a significant percentage of the reactions have been clearly accounted for by evidence of gross overdosage. It should be said, too, that every one of the patients with this reaction has recovered completely without complications (as in the case Dr. Friedman reported).

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V 15
1955

LAW DEPARTMENT

RESPONSIBILITY OF PHYSICIAN FOR USE OF RESEARCH DRUGS

The following information is supplied concerning the responsibility of a physician for experimentation with drugs or prescribing unproved drugs.

In *Fortner v. Koch* (Mich.) 261 N. W. 762, an individual consulted a physician because of a swelling on his knee. The physician, after having taken a history and having made a manual examination diagnosed the condition as a sarcoma and placed the patient on a diet. A week later the physician gave the patient an "antitoxin" injection. Four days later the skin over the swelling broke. The physician dressed this and applied "phenoisolin" and then discontinued attendance. A second physician then diagnosed and successfully treated the patient. Suit was brought against the first physician alleging want of skill and care in failing to use all available and necessary diagnostic procedures and for the injection of poisons or "harmful drugs" into the blood stream. The court held that the first physician did not use ordinary diligence in availing himself of the various methods of diagnosis for discovering the nature of the disease and then said: "If the general practice of medicine and surgery is to progress, there must be a certain amount of experimentation carried on; but such experimentation must be done with the knowledge and consent of the patient or those responsible for him and must not vary too radically from the accepted methods of practice."

In *Owens v. McCleary* (Mo.) 281 S. W. 682, in an action for malpractice the court said: "Conformity with the established mode of treatment is a test ordinarily applied in determining whether a physician or surgeon in a given case has brought to the treatment of his patient the requisite knowledge and skill. A failure to employ the methods followed or approved by his school of practice evidences either ignorance or experimentation on his part. The law tolerates neither."

In *Kershaw v. Tilbury* (Calif.) 8 P. (2d) 109, the issue arose from the malpractice of a drugless practitioner who had claimed to have perfected a "radio" method for treatment of disease. The court said that when anyone by reason of his own inventions holds himself out as a healer of disease and accepts employment as such he must be held to the duty of being reasonably skillful in his practice. When such person is engaged in experimentation he will be held accountable for any damages proximately caused by his unskillful treatment.

In *Taylor v. Fishbaugh* (Calif.) 79 P. (2d) 174, the plaintiffs, husband and wife, sued the defendant for malpractice, alleging that he improperly, negligently, and carelessly prescribed for the wife a remedy referred to as cyclobarbital (Phanodorn). The trial court entered a judgment of nonsuit at the conclusion of the plaintiffs' evidence, and the plaintiffs appealed. It was incumbent on the physician, said the court, to apply that degree of care, skill, knowledge, and attention ordinarily possessed and exercised by physicians under similar circumstances in the locality in which the treatment was administered. To justify submitting the issues to the jury, it was necessary for the plaintiffs to prove negligence or lack of care or skill on the physician's part by expert witnesses familiar with the practice concerning the patient's infirmities in the locality in which she was treated. Without such testimony, no valid judgment could be rendered against the physician. Since the plaintiffs' case was not supported by the testimony of expert witnesses, the trial court, in the opinion of the district court of appeal, properly granted a motion for a nonsuit.

In *Bockoff v. Curtis* (Mich.) 217 N. W. 750, the plaintiff was treated for sciatic neuritis, without relief. He reported to his physician that he had been suffering intense pain and threatened to commit suicide if not relieved. The defendant was called in and injected alcohol "into the sciatic nerve in plaintiff's back." Almost total paralysis of the left leg resulted, from which there was a partial recovery. The plaintiff brought suit, and a judgment was rendered in his favor. The defendant appealed. The trial judge, in charging the jury, stated that even though the use of alcohol was good medical practice, the defendant was liable if he did not tell the plaintiff in advance what the consequences would be. He instructed the jury: "You have a right to consider . . . that even though the defendant's treatment was proper and careful, still he may be held liable on the ground that he did not advise the plaintiff in advance of the nature of the treatment and its probable consequences." Although the higher court did not dispute the validity of the instruction, the case was reversed on other grounds of a technical nature (statute of limitations).

The following legal conclusions may be drawn from these cases as to the responsibility of a physician in the administration of drugs. 1. In treating a patient with a drug, the physician must apply that degree of care, skill, knowledge, and attention ordinarily possessed and exercised by physicians under similar circumstances in the locality in which the treatment was administered. 2. Even though a physician's treatment is proper and careful in the administration of a drug, he may nevertheless be held liable for the consequences of his treatment if he failed to advise the patient in advance of the nature of the treatment and its probable consequences. 3. The administration of an experimental drug may be done only with the knowledge and consent of the patient or those responsible for him, and then only if the treatment does not vary too radically from the accepted method of practice.

MEDICOLEGAL ABSTRACTS

Hospitals, Charitable: Liability for Negligence of Nurse.—The plaintiff sued the Yakima Valley Memorial Hospital to recover for injuries caused by the negligent act of its employee. Judgment was entered for the defendant, and the plaintiff appealed to the Supreme Court of Washington.

The plaintiff entered the defendant hospital, a charitable institution, as a paying patient. While there a nurse injected a foreign substance into the plaintiff's left arm, causing pain and permanent injury. The plaintiff did not claim that the hospital had been negligent in either selecting or retaining the nurse as its employee, or that it had failed to provide proper equipment. The trial court dismissed the suit on the basis of an established rule of immunity, which protects charitable institutions from suits based on the negligent acts of its servants, when committed in the course of rendering services consistent with the charitable purposes of the institution. In maintaining an appeal, the plaintiff urged the Supreme Court to overrule the immunity rule as adopted in earlier decisions in that state.

The Supreme Court thoroughly reviewed the trend of decisions in other states. If the roll of other American state and territorial courts was called today on the question of whether a hospital would be immune from suit under the facts of this case, said the court, we believe that it would show the following data: 26 courts would grant immunity, 20 would deny immunity, and 4 states and one territory would be doubtful. Courts that would grant immunity are Connecticut, Idaho, Indiana, Louisiana, Massachusetts, Michigan, Nebraska, New Jersey, New York, North Carolina, Ohio, Pennsylvania, Rhode Island, Texas, Virginia, West Virginia, Wisconsin, Wyoming, Arkansas, Kansas, Kentucky, Maine, Maryland, Missouri, Oregon, and South Carolina. Only the last eight states have complete immunity. In New York the courts do not apply the immunity rule, as such, but reach the same result in a case of this kind by holding, as a matter of law, that hospital nurses are the employees of

the patient rather than the hospital. In Rhode Island the immunity rule is established by statute. In Maryland the court-made immunity rule is apparently overcome by statute in cases in which the institution carries liability insurance. The courts that would deny immunity are Alabama, Alaska, Arizona, California, Colorado, Delaware, District of Columbia, Florida, Georgia, Illinois, Iowa, Minnesota, Mississippi, New Hampshire, North Dakota, Oklahoma, Puerto Rico, Tennessee, Utah, and Vermont. In four of these jurisdictions—Colorado, Georgia, Illinois, and Tennessee—execution on such a judgment can be had only against nontrust property, such as liability insurance. The five jurisdictions that must be classified as doubtful on such a roll call are Hawaii, Montana, New Mexico, and South Dakota, where no reported cases are to be found, and Nevada, where the one reported decision provides no reliable indication of what that court would decide on this precise question.

Thus American judicial thinking, which formerly gave "overwhelming" acceptance to the immunity rule, now gives that doctrine a very modest majority. This indicates, of course, that the trend of recent decisions has been away from nonliability.

It is our conclusion that there is today no factual justification for immunity in a case such as this, and that principles of law, logic, and intrinsic justice demand that the mantle of immunity be withdrawn.

Accordingly, the Supreme Court reversed the judgment for the defendant hospital and remanded the case to the trial court. *Pierce v. Yakima Valley Memorial Hospital Association, 260 P. (2d) 765 (Wash., 1953).*

Drunkenness: Criteria for Admissibility of Chemical Tests.—The defendant was charged and convicted of the crime of driving a motor vehicle while intoxicated. He appealed to the court of criminal appeals of Texas.

During the trial of the case a police officer, one Barnett, testified that after the defendant's arrest he conducted a Harger breath test to determine the alcoholic content by weight of the defendant's blood. Barnett testified that the defendant blew up a balloon; the breath in the balloon was then expelled through a tube containing a mixture of potassium permanganate and sulphuric acid until a certain color was reached. At this point a measure of the water displaced by the breath that had passed through the tube was taken to determine how much air was required to create the certain color. The amount of air was determined by reading a calibrated scale. From there the calibrated scale has to be used to make a mathematical determination of the percentage of alcohol in the blood; and finally the result must be interpreted into terms of either intoxication or nonintoxication. Barnett admitted that he had no personal knowledge of how to do the last two steps, and that in performing those two steps he had relied solely upon the scale that came with the testing set. It further appeared at the trial that Barnett consistently conducted such tests but was not in any way supervised in such matters by an expert in that field; and further, that Barnett, or anyone else connected with giving such tests, never checked the accuracy of the chemicals used therein. The defendant argued that the result of the Harger breath test was improperly admitted into evidence.

The court of criminal appeals agreed with the defendant that the trial court had erred in admitting the result of the test into evidence. It held that before admitting such results the evidence should show that (1) the chemicals were compounded to the proper percentage for use in the machine, (2) the operator and the machine were under the periodic supervision of one having an understanding of the scientific theory of such a machine, and (3) that the result was determined by one having sufficient knowledge to be able to translate the reading of the machine into the percentage of alcohol in the blood and in turn to interpret the percentage in terms of either intoxication or nonintoxication. It was not proper, said the court, to permit the operator to state the result of the test solely on the basis of what the chart said, since that amounted to hearsay testimony.

Accordingly, the court ordered the defendant's conviction to be set aside and a new trial held. *Hill v. State, 256 S. W. (2d) 93 (Texas, 1953).*

MISCELLANY

This advertisement by the Norfolk and Western Railway appeared in Newsweek *magazine:*

THE PROMISE ABE LINCOLN MADE

When Lincoln went to Gettysburg on November 19, 1863, he made a simple promise to the people.

He told them that the United States would not perish so long as it was built upon government of the people, by the people, and for the people.

Government *of* the people is the people's necessity.

Government *for* the people is the people's privilege.

Government *by* the people is the people's responsibility.

If you could have asked, "Mr. President, what do you mean by *'government by the people'?"*, Abe Lincoln might have answered you along these lines:

I mean a government in which every citizen feels himself a part—a free organization of the people in which each individual is just as interested in the affairs and success of government as he would be in the affairs and success of a business in which he had invested money; just as eager to monitor it, just as eager to offer suggestions, just as aware of his right to participate.

Actually, we can't have *government by the people* unless at all times a majority of the people are *informed* to understand what's going on, *vigilant* to detect an opportunity or a danger, and *vocal* to express an opinion about it.

You can't hold Abe Lincoln to his promise unless you hold yourself to your responsibility.

From a notebook on medicine written in 1773 by Dr. Charles S. Cooley, son of William Cooley, prefaced at Lebanon, Conn., Aug. 20, 1773.—ED.

HEALTH

As health is the most valuable blessing that mankind can enjoy upon the earth, and as it is the peculiar habitude that gives a relish to all his other pleasures; and without which, all the riches in the world cannot create him the least satisfaction; so it will appear of what high importance it is, and how near by it conforms him, that the practice of physick should be grounded on just principles.

Therapeutics, Item 192.
Medicamen pro venerem.

Take a grain of sense, half a grain of prudence, a drahm of understanding, one ounce of patience, a pound of resolution, and a handful of dislike; and mix them all together and fold them up in the alembic of your brains, there let them be 24 hours, then take them out and strain them clear from the dregs of melancholy and put them in the bottom of your heart and stop them down with the cork of sound judgment, there let them stand 14 days in the water of cold affection; this rightly made and properly applied is the most effectual cure in the universe and was never known to fail.

N. B. You may have the ingredients by walking into the town of forgetfulness on the hill of self-denial.

Lebanon, Connecticut,
August 20, 1773

MEDICAL LITERATURE ABSTRACTS

INTERNAL MEDICINE

The Role of Hypertension in the Etiology and Prognosis of Coronary Occlusion. L. H. Sigler. Ann. Int. Med. **42:**369-376 (Feb.) 1955 [Lancaster, Pa.].

In order to determine whether hypertension affects the incidence of coronary occlusion and whether it alters the prognosis, Sigler reviewed a series of 1,160 patients with coronary occlusion with and without hypertension. Each patient selected for the present study had had many blood pressure determinations both before and after the onset of coronary occlusion. The series included 946 men and 214 women. At the time this report was compiled 797 were still alive and 363 were dead. The cases were classified into four blood pressure groups: group 1: systolic up to 140 mm. Hg, diastolic up to 90 mm. Hg; group 2: systolic 140 to 160, diastolic 91 to 100; group 3: systolic 161 to 200, diastolic 101 to 110; and group 4: systolic above 200 and diastolic above 110. This last group included some patients with blood pressures as high as 300 systolic and 170 diastolic. Each blood pressure group was subdivided into ages in decades with regard to the occurrence of the first attack of coronary occlusion in males and in females; the average longevity after the first attack of coronary occlusion; and the length of survival of more than one year, 5 years, and 10 years after the first attack of coronary occlusion. The ratio of males to females as regards coronary occlusion was 4.4:1, while percentage-wise, hypertension was about twice as frequent in females as in males. It was found that in men coronary occlusion begins to appear earlier in life and its incidence progressively rises, reaching a peak between 50 and 59 years. In women, the peak is reached between 60 and 69. The incidence of hypertension likewise increases with age, but this increase does not correspond to the increase in coronary occlusion. Of the 363 patients who died, the few who died before 40 years of age were all in the normotensive group, except for one who died from uremia. After that age, there was a progressive increase in deaths from coronary occlusion with advancing age, but such increase did not correspond to the increase in blood pressure. A greater percentage of men than women survived more than 1, 5, and 10 years after the attack of coronary occlusion. However, a greater percentage of hypertensive than normotensive women survived. Thus the figures do not indicate that hypertension has any definite causal and prognostic relationship to coronary occlusion.

On Amyloidosis and Other Causes of Death in Rheumatoid Arthritis. O. Gedda. Acta med. scandinav. **150:**443-452 (No. 6) 1955 (In English) [Stockholm, Sweden].

Of 10,914 autopsies that were performed at the institute of pathology of the University Hospital in Lund, Sweden, between 1933 and 1952, signs of rheumatoid arthritis were observed in 45 (0.4%). The ages of the 45 patients at the time of their death varied between 8 and 77 years. Twenty-one of the 45 patients died in the fifth and sixth decades of life. Female patients predominated in a ratio of 4 to 1. Of the 45 patients, 14 (31%) died of infectious diseases, 8 (18%) died of septicemia, 5 (11%) of pneumonia, and one (2%) of tuberculosis. Eleven patients (24%) died of renal insufficiency, and in nine (20%) uremia was caused by amyloid degeneration, while in the remaining two (4%) the uremia was caused by chronic diffuse glomerulonephritis. Ten patients (22%) died of cardiac disease, with death resulting probably from rheumatic cardiac lesions in five and from arteriosclerotic changes in the other five. Death resulted from miscellaneous causes in eight patients (18%); in three of these patients death was caused by agranulocytosis that resulted from aminopyrine in two and from chrysotherapy in one only. Cancer was the cause of death in one patient and pulmonary embolism in another. Cerebral accidents or gastrointestinal diseases did not cause the death of any of the 45 patients. Compared with the results of most investigations of a similar type, the incidence of amyloidosis in the author's autopsy cases was high. Either amyloid contracted kidney or subacute amyloid glomerulonephrosis were the forms of renal amyloidosis observed in 9 (20%) of the 45 autopsy cases. Signs of renal lesions in a patient with rheumatoid arthritis should make one suspect amyloidosis. In cases of normal or low blood pressure associated with decreased renal function, amyloidosis of the adrenal glands should be suspected. Treatment with cortisone and possibly desoxycorticosterone acetate and sodium chloride seems to be rational in such cases. The rheumatic diseases are a comparatively common cause of amyloidosis. Amyloidosis was observed in 86 (0.8%) of the 10,914 autopsy cases. In 41 (47.7%) of the 86 cases tuberculosis was the basic disease; second in frequency were rheumatoid arthritis and rheumatic fever, with a ratio of 16% (rheumatoid arthritis with a ratio of 13%). Bronchiectasis was the cause of amyloidosis in 8%, ulcer of the leg in 5%, myeloma in 3.5%, hypernephroma in 2%. Chronic pyelonephritis, chronic pelviperitonitis, chronic osteomyelitis, perforating duodenal ulcer, malignant lymphogranuloma, and cutaneous sarcoma, respectively, were the basic diseases in 11.8% of the cases. The cause of amyloidosis could not be established in about 6% of the cases.

How to Conduct the Treatment of a Patient with Pulmonary Tuberculosis. Pierre-Bourgeois. Semaine hôp. Paris **31:**539-548 (Feb. 14) 1955 (In French) [Paris, France].

The present is an exposé of current problems in the treatment of pulmonary tuberculosis from the point of view of the nonspecialist. On certain points there is little or no divergence of opinion: the superiority of streptomycin and isoniazid over other antibiotics, for instance. Para-aminosalicylic acid is used in association with one of these to prevent the development of resistance to the major antibiotics. There is also agreement on the necessity of this combined treatment and on the value of prolonged treatment without change in the dose, interval, or route of administration. It is also agreed that the indications for pneumoperitoneum are very limited. There is disagreement in the matter of using the antibiotics in question; the author feels that treatment with all three is no more effective than treatment using two of these agents and should therefore not be employed. He also concludes that treatment of the initial stage of disease should consist of strong daily doses, before maintenance therapy is instituted. But the essential question of the present day is that of the proper role of collapse therapy, in particular pneumothorax. The author's opinion is that collapse therapy and chemotherapy are not incompatible but should be used concomitantly. Studies in respiratory physiology have not shown that respiratory insufficiency frequently develops after abandonment of a pneumothorax; once a pneumothorax has been decided on, its realization should not be delayed. Rather than prescribe bed rest that will be extended for a year or more, it seems preferable to the author to use physiological rest for the lung under pneumothorax, with continued medication. The indications for pneumothorax should be limited to unilateral cavitary cases of tuberculosis or cases that have become unilateral through the influence of previous antibiotic treatment. Unsatisfactory pneumothoraces should be promptly abandoned, and even good ones should not

The place of publication of the periodicals appears in brackets preceding each abstract.

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be maintained as long as was the custom before the age of chemotherapy. A period of two to three years would seem to be the maximum, in order to avoid old, rigid pneumothoraces that might cause effusions and respiratory insufficiency. Surgical collapse therapy and exeresis of lesions have undisputed value in the treatment of pulmonary tuberculosis. In summary, it can be said that the treatment of this disease, which is so long and requires so much cooperation on the part of the patient, must be allowed to include all these different methods. The physician must determine the proper treatment in each instance, and standardization must not be sought.

Infectious Mononucleosis with Polyradiculitis: Fatal Case. E. Reske-Nielsen and E. F. Mogensen. Ugesk. læger **117**:103-105 (Jan. 27) 1955 (In Danish) [Copenhagen, Denmark].

The authors found 18 cases of death due to mononucleosis reported in the literature, 7 from rupture of the spleen, 7 from respiratory paralysis, and 4 from other causes. Respiratory paralysis depends on complication with polyradiculitis. In their own case, in a youth, aged 19, there was acute onset with high fever and inflamed lymph nodes of the neck. The temperature gradually became normal. Paresthesias developed in the succeeding days, followed by paralyses beginning peripherally in the extremities and by respiratory paralysis. In spite of promptly administered artificial respiration, death occurred in 48 hours, after increasing hyperthermia. The diagnosis of mononucleosis was made by the aid of the peripheral blood picture and Paul Bunnel's reaction. Microscopic examination of the organs revealed infiltration with mononuclear cells in the tonsils, lymph nodes, spleen, liver, heart muscle, and sympathetic ganglions in the neck; no infiltration was seen in the kidneys, bone marrow, striated musculature, or brain.

Pulmonary Tuberculosis: Carriage of Cases by Air. A. S. R. Peffers. J. Roy. Inst. Pub. Health & Hyg. **18**:38-43 (Feb.) 1955 [London, England].

The Department of Health of Scotland transfers patients with open pulmonary tuberculosis from Scotland to Switzerland by air. The aircraft selected is pressurized to the equivalent of 5,000 ft., while it is flying at an altitude varying between 13,000 and 16,000 ft. The sanatoriums in Switzerland are also at an altitude of approximately 5,000 ft. During the four years 1951 to 1954 a total of 824 patients with pulmonary tuberculosis were transported by air to Switzerland and 536 were carried back to Scotland. The following types of patients were excluded from transport: (1) those with very mild cases, which did not require prolonged treatment; (2) those with advanced disease, who were regarded as highly infectious and unfit to undertake any journey sitting up; (3) patients with severe restriction of lung function either as a result of extensive tuberculosis or complicated by emphysema, bronchitis, etc.; (4) patients who had had a recent severe hemoptysis or had pleural effusions; (5) those with coincidental disease (e. g., diabetes, chronic nephritis, and peptic ulcer); (6) stretcher cases. The patients had received little or no previous treatment and were suffering from pulmonary tuberculosis of moderate severity. The patients who were transported back to Scotland had received various forms of therapy for periods varying from 6 to 12 months. Some had been treated by simple bed rest and chemotherapy, while others had artificial pneumothorax or extrapleural collapse, pneumoperitoneum, or thoracoplasty. Others were returning for lung resections in a thoracic surgery unit. For those under treatment by pneumothorax and pneumoperitoneum, it was recommended that they should not have a refill for at least seven days before travel, owing to the possibility of reduced atmospheric pressure at altitude causing the air in the pleural and abdominal cavities to expand, with associated cardiac and respiratory embarrassment and the danger of the tearing of adhesions. Except for air-sickness, which occurred in from 3 to 4% of these patients, no serious problems arose en route. During one return flight two patients with apical pneumothorax complained of a "snapping," painful sensation momentarily over the affected apex. Their general condition was excellent and not impaired. The pain may possibly have been due to the tearing of delicate adhesions as a result of a surging of the cabin pressurization system at the time of take-off. Both passengers were in the same part of the aircraft and had almost identical lesions and treatment. Several bottles of oxygen were carried. In case of the need for relieving pressure from an artificial pneumothorax, an 'A. P. needle and equipment, sterilized and ready for immediate use was available. Foods and drinks were served in disposable containers. All superfluous furnishings and fittings were dispensed with. Window curtains were, however, retained to reduce glare, which may be troublesome while flying over this route. Curtains were later removed for laundering. The author concludes that modern, pressurized aircraft affords a very satisfactory and quick method of transporting large numbers of patients with pulmonary tuberculosis over long distances, provided special provisions are made.

Clinical Significance of Serologic Reactions of Toxoplasmosis. M. Lelong and G. Desmonts. Presse méd. **63**:133-134 (Feb. 2) 1955 (In French) [Paris, France].

The authors have been studying biological diagnosis of toxoplasmosis since 1947. They soon abandoned two tests, neutralization in vivo (Sabin rabbit skin test) and Frenkel's intradermal reaction to toxoplasmin, as yielding only qualitative results. The complement-fixation and Sabin-Feldman dye tests give quantitative results; the former is the easier technique and is therefore the more widely used. Twenty children with congenital toxoplasmosis and 18 of their mothers were tested. Among 500 normal persons tested, 98 had positive or doubtful reactions. The following conclusions are drawn from this study. 1. A positive serologic reaction in a child under 2 years of age indicates that he has congenital toxoplasmosis, except during the first few months of life, when the reaction might be due to antibodies transmitted from the mother without fetal infection. In a child over 2 years of age who is suspected of having congenital toxoplasmosis, a positive reaction is of diagnostic importance but does not prove the toxoplasmic nature of the lesions. 2. The diagnosis of acquired toxoplasmosis cannot be based on the serologic reaction alone. It is indispensable to practice the dye test in such instances; a reaction to this test occurs early in the course of the disease. A strongly positive lysis of Toxoplasma organisms with negative or weak complement fixation suggests that the disease has been acquired recently and is in the process of development. However, it is necessary to repeat the examinations in all cases. A significant increase in the number of antibodies must be noted during the period of clinical progression of the disease for the diagnosis of acquired toxoplasmosis to be confirmed.

Hypercalcemia and Renal Insufficiency Secondary to Excessive Milk and Alkali Intake. E. Kessler. Ann. Int. Med. **42**:324-338 (Feb.) 1955 [Lancaster, Pa.].

A new syndrome occurring in patients with symptoms of peptic ulcer, who ingest large amounts of milk and absorbable alkali, and characterized by hypercalcemia (without hypercalciuria or hypophosphatemia), calcinosis, and renal insufficiency, was described by Burnett, Commons, Albright, and Howard in 1949. Kessler found that, in one year, 3 of a total of 291 patients with peptic ulcers treated at a single hospital exhibited the features of this syndrome. Although this high rate (over 1%) of incidence may be fortuitous, it suggests that this syndrome may be more common than was formerly suspected. The first of the three patients, during the last four years, had ingested daily 2 to 4 qt. of milk, 2 to 3 Alka-Seltzer tablets, and 4 teaspoonfuls of sodium bicarbonate. Greater amounts were ingested during exacerbations of epigastric pain. In 1950 a perforated duodenal ulcer was repaired surgically. The duration of the present symptoms of epigastric pain and intermittent vomiting was six weeks. Treatment consisted of methantheline (Banthine), phenobarbital, nonabsorbable antacids, a low calcium diet (150 mg. per day), and a high fluid intake. The symptoms subsided. Seven months later, the patient was readmitted with complaints of persistent mild weakness and tarry stools. He claimed to have maintained the prescribed regimen. Hypochromic anemia was again present. Improvement in symptoms occurred following blood transfusion and ferrous gluconate administration. Occult

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blood disappeared from the stools, and the patient was discharged. The effect of the low calcium diet on the chemical constituents of the blood and renal function are recorded in a diagram. After presenting the histories of the other two patients, the author reviews the 21 cases of this syndrome reported to date. All patients but one ingested both milk and absorbable alkali. Ocular lesions were encountered in 16 of 21 instances; they consist of band keratitis; of crescentic deposits of calcium in the margins of the cornea, most prominent on the nasal and temporal sides; and of small crystalline deposits of calcium in the conjunctiva of the palpebral fissure area. Calcinosis, excluding the occular lesions, was detected in 18 of the 21 cases. Within the kidneys the calcium deposits are located in the tubular lumens and within the tubular cells. Nephrolithiasis has been noted three times, in addition to case 2 of the present report. Of the six instances of nephrocalcinosis, five were detected by clinical studies and one was found only on microscopic examination of the kidney after autopsy. Subcutaneous calcification has been found in such diverse sites as the lumbar region; the elbows, hands and knees; the shoulder, apparently in the region of the subacromial bursa; the wrist; and at the angle of the scapula attached to periosteum; and in the subdeltoid bursa and region of the tuberosity of the ischium. Deposits of calcium have been found also in the lungs, in the walls of the blood vessels, and in the brain substance. Increased density of the cancellous bone and periosteal new bone formation have likewise been observed. Hypercalcemia was present in 18 of the 21 cases. Certain aspects of hypercalcemia are discussed. Azotemia was present in all 21 patients. Seven deaths occurred in the 21 recorded cases. The prognosis appears to be related to the duration and severity of the renal disease.

A Familial Study of Gastric Carcinoma. G. W. Hagy. Am. J. Human Genet. **6:**434-447 (Dec.) 1954 [Baltimore].

Hagy reports on a preliminary investigation of the frequency of cancer among the relatives of patients who have been treated for gastric carcinoma and among the relatives of control patients who do not have any type of cancer. Each gastric carcinoma proband underwent surgery and was proved to have gastric carcinoma by microscopic study of the tissue. Each control proband had had a recent physical examination, and no evidence of cancer was found. Detailed information was requested on the following relatives of each proband: children, siblings, parents, parents' siblings, and grandparents. All illnesses, operations, and causes of death of these relatives and their children were considered. A group heterogeneous for health factors was used for controls. Some control probands were being treated for diabetes; others were being treated for or had had tuberculosis, duodenal ulcers, heart conditions, or arthritis. Some did not have any illness. Difficulties in verifying reported cases of cancer were encountered in both the gastric carcinoma and control groups. Only a limited reliance can be placed in death records that have been used as one source of confirmation of cases of cancer. It has been possible to verify a greater proportion of the cancer cases reported among relatives in the gastric carcinoma series (65%) than in the control series (50%). For this reason more reliability may be placed on the incidence of cancer in the gastric carcinoma series. However, the difference that is observed in the data for an increased frequency of gastric cancer in the gastric carcinoma series assumes more importance when one realizes that the two series have been treated and evaluated in the same way and are both subject to the same shortcomings. Both the gastric carcinoma and control groups had a higher frequency of all types of cancer than is present in the general population. The relatives of the control probands have nearly as high a frequency of cancer of all sites as the relatives of the gastric carcinoma probands. There appears to be a greater tendency to find gastric cancer among the relatives of a patient with gastric carcinoma than among the relatives of an individual who does not have gastric carcinoma. The higher incidence of gastric cancer among the relatives of the gastric carcinoma probands can be due to chance alone, but the data are not clear-cut enough to rule out the possibility of a hereditary influence. The present data may become significant by statistical test when larger sample sizes are compared and if the trend of gastric cancer now noted in this study is maintained.

SURGERY

A Review of 650 Hip Arthroplasty Operations. M. M. Shepherd. J. Bone & Joint Surg. **36B:**567-577 (Nov.) 1954 [London, England].

Cup arthroplasties and Judet arthroplasties were performed on 649 hips by members of a research group of the British Orthopaedic Association in seven centers. Postoperative follow-up periods ranged from six months to 11 years. Arthroplasties were performed to relieve pain and to give the patient a useful, movable joint. The best results were obtained when only one hip was diseased and was operated on; less good results were obtained when both hips were diseased and one was operated on; and results were least good when bilateral operations were performed for disease of both hips. Although many older people obtained excellent results, there were fewer excellent and good results among the older patients and a higher percentage of poor results. Women gained fewer excellent results and more poor ones than men; this may possibly be explained by the selection of cases and by the better level of muscular fitness of the men. Better results were often seen when there was some degree of permanent flexion deformity after the operation. Results of cup arthroplasty were best after one year and up to four years after operation, but four to five years after the operation the poor results rose to 52% and beyond five years to 54%. The results of Judet arthroplasty were good up to two years, and in the period from six months to one year they were better than those of cup arthroplasty, but in the period from two to three years the poor results rose to 38%. Increasing deterioration is likely with the passage of time. The high percentage of poor results in the over-two-year group of Judet operations and the over-four-year group of cup arthroplasties is at first sight depressing. But the same groups showed 43% and 29%, respectively, of good and excellent results, and many of these showed no signs of deterioration. Considering the durability of arthroplasties as a whole, the most durable are those in which no foreign material is introduced into the joint; the next most durable are those in which a foreign body is interposed between the joint surfaces; and the least durable results follow attempts to incorporate a foreign material in one of the bones of the joint. Apart from error in the selection of cases, and operative or postoperative "accidents," the main causes of failure to achieve satisfactory results are inability to maintain movement in the joint, instability, or the appearance or reappearance of osteoarthritis. Gradual decrease in the range of movement, fixed deformity, or even fibrous or bony ankylosis may occur. Instability may result from the operation and be of such a degree that it persists. Lack of adequate rehabilitation may cause the unnecessary persistence of even lesser degrees of instability. Absorption of the neck of the femur or the floor of the acetabulum may later bring about the same condition. Loosening and increasing varus of the prosthesis in a Judet arthroplasty again results in instability. The apparently capricious appearance of osteoarthritis is a cause of many disappointing results. In many cases, however, a relatively painless, stable, durable, and movable joint was achieved. With increasing knowledge of the causes of failure and the reasons for success, it should be possible to decide on the best method of treatment in individual cases, to secure a higher proportion of good results, and even to give the patient a confident and reliable prognosis.

Vitamin Therapy of Sudeck's Syndrome. K.-H. Beckmann. Chirurg **26:**57-62 (Feb.) 1955 (In German) [Berlin, Germany].

Beckmann discusses the pathogenesis of Sudeck's syndrome (traumatic osteoporosis) giving particular attention to its association with nerve injuries and bone fractures. Early recognition is important for effective treatment, but unfortunately the early symptoms of traumatic osteoporosis may be mistaken for those of the causal nerve injury or fracture. As soon as the diagnosis has been established, immobilization should be enforced until the pain caused by movement and weight bearing has subsided. Dietetic measures and abstinence from alcohol and nicotine are helpful. Physical therapy, particularly measures that induce hyperemia, is recommended. Preparations that stimulate the circulation have been found helpful, in particular a pancreatic

substance and sex hormones. Blockage of the sympathetic nerve has been recommended by some authors. Beckmann is particularly concerned with the use of vitamins D and E. Vitamin D influences the calcium metabolism and through this the osteoarthropathies. Vitamin E exerts a stimulating effect on the diencephalohypophysial system, and, by acting on the hypophysis, it also stimulates the thyroid and the adrenals. He employed vitamins D and E in the following manner. The patients were given daily from 35,000 to 40,000 I. U. of vitamin D and from 300 to 600 mg. of vitamin E, together with a calcium phosphate preparation. After three weeks of this medication, the daily dose of vitamin E was reduced to 100 mg. In 1953 the author treated 22 patients of an average age of 52 years, patients in the fifth and sixth decades being especially predisposed to the development of Sudeck's traumatic osteoporosis. Eleven of these patients had fractures of the radius, two of the humerus, one of the tibia, one of the neck of the femur, and seven had malleolar fractures. Sixteen of these patients were treated with vitamins, four with the pancreatic substance, and two received physical therapy only. Of the 16 treated with vitamins, 10 patients were cured, clinical and roentgenologic improvement was noted in 4, and in 2 patients the process was only arrested. These last two were women aged 73 and 75, respectively, with a tendency to osteoporosis. The treatment had to be continued for from 6 to 14 weeks. The effect of the treatment is illustrated by two case histories.

PEDIATRICS

Acute Polyarthritis and Infections of the Upper Respiratory Tract: Prophylaxis. M. K. Caramanian. Semaine hôp. Paris **31**:490-500 (Feb. 6) 1955 (In French) [Paris, France].

This study is a review of the literature combined with personal observations. In rheumatic fever, prevention of rheumatismal relapses is the indispensable complement of hormone treatment of the acute attack. Prevention may be accomplished in three ways. 1. Immediate treatment with antibiotics, especially penicillin and secondarily chlortetracycline, of angina and streptococcic respiratory infections. This treatment in patients with long-standing rheumatism yields a decrease in relapses by comparison with nontreated patients, but penicillin therapy is inadequate in these patients with disease of long duration. 2. For continuous prophylaxis penicillin is preferable to the sulfonamides; continuous antibiotic administration is begun at the same time as hormone therapy, that is, immediately. Penicillin is injected intramuscularly for the first few days and is then given orally during the next years. This daily treatment decreased the number of rheumatic relapses in the proportion of one to five at least in two hospitals. Injectable preparations of penicillin with delayed action seem to be promising. 3. The suppression of residual foci of infection, such as in the tonsils or teeth, is sometimes indispensable. Lastly, it is pointed out that acute infectious arthritis of rhinopharyngeal origin, aside from Bouillaud's disease, also benefits from antibiotic prophylactic therapy.

Appendicitis with Perforation During the First Weeks of Life. G. Kolb and E. Schaeffer. Kinderärztl. Praxis **23**:1-4 (Jan.) 1955 (In German) [Leipzig, Germany].

The younger a child, the more difficult it is to make a clinical diagnosis of appendicitis, yet autopsies in infants occasionally reveal peritonitis resulting from an appendicitis. Since relatively few infants and children are subjected to autopsy, appendicitis is probably more common than is known. This assumption is supported by the histological studies carried out by Kolb and Schaeffer on 880 appendixes removed in the course of two years from children less than 14 years old. These studies revealed that appendicitis increases in frequency beginning with the second year of life. It was also found that only about one-fourth of the appendixes showed acute inflammation, whereas nearly all the others showed histological signs of earlier inflammations. Two of three appendixes of one-year-old children showed signs of chronic inflammation. Literature reports on this problem emphasize that appendicitis in infants and young children may perforate quite rapidly, even within 24 hours. After suggesting certain functional peculiarities of the child that might be responsible for this, the authors present the case of one of a set of uniovular twin boys, in whom meteorism was first noted on the 12th day of life. After temporary improvement in response to treatment, the meteorism became exacerbated on the 16th day and the child died two days later. Autopsy revealed acute ulcerous appendicitis with gangrene in the distal third and with periappendicitis. There was a suppurating peritonitis with encapsulation of the exudate in the upper abdomen, a so-called perityphlitic abscess. The parenchymatous organs showed turbid swelling. From the fact that the child showed normal development to the 12th day of life, the author deduces that the appendicitis developed after birth. It should be remembered that appendicitis may develop not only in older children but even during the first days of life. In any acute, obscure abdominal disorders, even in newborn infants, the possibility of appendicitis should be considered.

Cerebral Cysticercosis in Children. J. A. de la Torre, G. Rentería and F. Cisneros. Bol. méd. Hosp. Infantil **11**:643-654 (Dec. 1) 1954 (In Spanish) [Mexico, D.F., Mexico].

Cerebral cysticercosis in adults is frequent in Mexico. Cases in children have been rarely reported. Sixty-eight thousand two hundred sixteen children were hospitalized in the Hospital Infantil of Mexico City, during the period of the last 10 years. Cerebral cysticercosis was observed in 12 patients, most of them between the ages of 3 and 9 years. The duration of the infestation prior to hospitalization varied between one month and six years. The alterations in the cerebrospinal fluid consisted of an increase in the globulins and of pleocytosis with predominance of mononuclear cells. The neurological symptoms varied with the involvement of foci, the location, number, and size of the parasites, and the cystal stage. In 11 patients, symptoms of intracranial hypertension predominated. All the patients had marked bilateral papilledema. The existence of diffuse cerebral cysticercosis was proved in seven cases by operation or at autopsy. In four patients the symptoms were very suggestive, but the results of ventriculography in two and of craniotomy in the other two were not of a conclusive diagnostic value. In one of the patients a large tumor was visualized behind the optic chiasm during ventriculography and was removed by craniotomy. It was a huge cysticercous cyst with many vesicles. Ten patients underwent craniotomy; four died in the postoperative period and one later. Five patients were discharged unimproved. Operations for shunting of the cerebrospinal fluid into the pleural and peritoneal cavities, respectively, were done in two patients. They were discharged greatly improved. The follow-up period is short. The authors conclude that surgery of cerebral cysticercosis in children is impossible, mainly because of the multiple foci of the cysts. Palliative therapy is indicated, consisting of shunting of the cerebrospinal fluid into the pleural or the peritoneal cavity. The technique is simple. The operation lowers intracranial pressure and prevents prolonged papilledema, atrophy of the optic nerve, and blindness.

Prolonged Intermittent ACTH and Cortisone Therapy in the Nephrotic Syndrome: Immunologic Basis and Results. K. Lange, L. Slobody and R. Strang. Pediatrics **15**:156-168 (Feb.) 1955 [Springfield, Ill.].

The serum complement levels of patients with acute glomerulonephritis and the nephrotic syndrome were investigated in an effort to determine whether there exist in these diseases complement binding antigen-antibody reactions with the kidney as a vast antigenic surface. Serum complement levels were always low in 40 patients with acute and subacute glomerulonephritis. Serum complement levels were low in 27 of 29 patients with the nephrotic syndrome whether or not underlying glomerulonephritis could be demonstrated. The low complement levels were not due to loss of complement into the urine, lack of formation, or anticomplementary factors. Spontaneous remissions of the nephrotic syndrome were preceded in 11 of 13 instances by high fever. Depression of the eosinophil count was

observed in four patients and a rise in the urinary 17-ketosteroids in one. Complement rose prior to the diuresis in spontaneous remissions and fell prior to relapses. Rise in serum complement and diuresis occurred independent of changes in plasma protein levels and changes in plasma oncotic pressure. In the nephrotic syndrome large doses of corticotropin and cortisone led to a rise in complement levels followed by diuresis. Relapses were preceded by a fall in complement. Corticotropin given for three to eight weeks on 3 successive days of each week after an initial 7-to-10-day course of corticotropin was accompanied by long-lasting remissions in three out of six patients. Cortisone given orally in high doses in a similar schedule after an initial 7-to-10-day course of corticotropin was accompanied by long remissions in 16 out of 18 patients when given for 6 to 30 courses. Cortisone maintenance therapy led to a rapid return to normal in the levels of plasma protein and cholesterol and a reduction of proteinuria. Cortisone maintenance therapy did not produce diuresis in four patients but prevented relapses in a high percentage of patients. There was no mortality among 29 patients with the nephrotic syndrome observed for from 3 to 40 months during or after maintenance therapy.

THERAPEUTICS

A Clinical Report on the Effect of Rauwolfia and Other Hypotensive Drugs. W. H. Bunn. Ohio M. J. **51:**126-129 (Feb.) 1955 [Columbus, Ohio].

Bunn formulates some of the questions that arise in connection with the use of various chemotherapeutic agents and plant derivatives designed to lower blood pressure. In this report he is concerned with Rauwolfia serpentina, a drug that was used at his hospital about a year before it was released for general use. More than 100 patients have received this drug since May, 1952, and accurate records are available for 75 of these. All patients had symptoms, and pressures in excess of 160 mm. Hg systolic and 100 mm. Hg diastolic. At the beginning of the study the supply of the drug was limited, so that it was used only for desperately ill patients. It was ineffective in these, particularly in those with advanced renal failure. However, Rauwolfia had a sedative effect and it slowed the pulse. Rauwolfia was effective in relieving many symptoms in hypertensive patients who were tense and overactive, with a tendency to tachycardia. The blood pressure usually reached a lower level within three or four days. Symptoms of anxiety and tension states were reduced in many patients within three weeks. Large doses were usually no more effective than a small or average dose. Frequently the dose, even though small, could be diminished after a period of three or four months, with continued good effects on blood pressure. Nasal congestion and gain in weight are undesirable secondary effects of treatment with Rauwolfia. Furthermore, when the crude drug is used nightmares and unpleasant dreams are common. Since the alkaloids of Rauwolfia have become available in more concentrated forms (Serpiloid or Serpasil), many of the undesirable side-effects have been eliminated. Case histories are presented to illustrate the effect of Rauwolfia on angina, the effect of the combination of Rauwolfia preparations with other hypotensive drugs, and the development of myocardial infarct while taking Rauwolfia. The author concludes that the administration of Rauwolfia serpentina in the form of the crude drug or one of its alkaloids is safe in the treatment of neurogenic hypertension. It may prove to be of value in the milder or moderately severe humoral type of hypertension. Used alone, it has been of no value in the treatment of advanced, severe, or malignant hypertension, especially the type associated with poor renal function. A combination of Rauwolfia and Apresoline or Rauwolfia and hexamethonium, or Rauwolfia with one of the Veratrum derivatives (such as Veriloid) may be effective when Rauwolfia alone fails to produce favorable results. It is important that patients taking the combination of Rauwolfia and Apresoline or Rauwolfia and hexamethonium be examined frequently so that blood pressures in the standing posture may be used to guard against serious or uncomfortable hypotension.

Effects of Intravenously Injected Vitamin K_1 and Water-Soluble Vitamin K (Menadione Sodium Bisulphite) on Hypoprothrombinemia During Anticoagulation Treatment. H. Stürup. Acta med. scandinav. **150:**437-442 (No. 6) 1955 (In English) [Stockholm, Sweden].

In 20 patients who were given bishydroxycoumarin (Dicumarol) because of coronary thrombosis or deep venous thrombosis with or without associated pulmonary infarction, the effect on the prothrombin activity of 50 mg. of menadione sodium bisulfite (vitamin K) given intravenously was compared with that of 10 to 40 mg. of vitamin K_1. When the prothrombin values and the maintenance dose of bishydroxycoumarin had become approximately fixed and anticoagulant treatment no longer was indicated, the patients were first given vitamin K and 48 hours later vitamin K_1; the administration of bishydroxycoumarin, however, was continued throughout the period of the vitamin K and vitamin K_1 injections and for 24 hours after these injections to insure that the consequent rise of the prothrombin values was caused exclusively by the vitamin preparations and was not a more or less spontaneous rise resulting from the discontinuation of the bishydroxycoumarin treatment. Results showed that vitamin K_1 has a much more rapid and a greater effect on the prothrombin activity than menadione sodium bisulfite. The author's results thus confirmed those reported by Rehbein and associates [*J. A. M. A.* **149:**1418 (Aug. 9) 1952]. Vitamin K_1, therefore, seems to be definitely preferable to vitamin K for treatment of hemorrhage induced by bishydroxycoumarin treatment and for patients who are given bishydroxycoumarin preoperatively. Although a therapeutic level of prothrombin was reached with 50 mg. of vitamin K after 24 hours in 6 of 12 patients with subtherapeutic prothrombin values, the same result was obtained with vitamin K_1 within 2 to 6 hours in 11 of 14 patients. The optimum doses of vitamin K_1 according to the various indications for treatment are discussed.

PATHOLOGY

Glycogenosis and Hepatic Sclerosis Revealed by Needle Puncture Biopsy of Liver: Atypical Gierke's Disease or Secondary Glycogenosis? R. Bulgarelli and F. De Matteis. Minerva pediat. **6:**981-988 (Dec. 31) 1954 (In Italian) [Turin, Italy].

A 3-year-old boy, whose body weight was almost normal but whose height was that of a 2-year-old child, was seen by the authors. He was jaundiced, anoretic, at times complained of slight abdominal pain, showed signs of lymphatism, and a tendency to rickets. The liver was greatly enlarged and firm; the spleen was also enlarged; and while the urine was slightly hyperchromic, the feces were slightly hypochromic. The history revealed that about five months earlier signs of subicterus had been present at the scleras and that, from the time the child was 2 years old, he had been drinking a glass of watered wine at every meal and sometimes even in between meals. On the basis of this information and of the clinical findings, a tentative diagnosis of acquired hepatomegalic cirrhosis of the liver was made. But the histological findings in a liver specimen secured by needle puncture biopsy revealed an enormous accumulation of glycogen and marked perilobular, interlobular, and intralobular sclerosis. It was suggested that the sclerosis could have been either secondary to the abnormal accumulation of glycogen in the liver parenchyma or that the two conditions could have developed concurrently. The authors favored the second assumption and considered the patient's condition an atypical case of glycogenosis (Gierke's disease) associated with hepatic sclerosis, the onset of which had been favored by the intake of watered wine from a very early age. If a biopsy specimen had not been taken and studied, hepatic glycogenosis would not have been considered and very likely the condition would have been diagnosed as hepatic nanism caused by hepatic sclerosis with metabolic disturbances closely resembling those found in patients with glycogenosis. Because of their experience with this patient, the authors feel that clinical and humoral studies of patients with hepatomegalic nanism are not sufficient diagnostic means and that the diagnostic method of choice is needle puncture biopsy.

BOOK REVIEWS

Peripheral Vascular Diseases. By Edgar V. Allen, B.S., M.A., M.D., Professor of Medicine, Mayo Foundation, Graduate School, University of Minnesota, Rochester, Nelson W. Barker, B.A., M.D., M.S., Professor of Medicine, Mayo Foundation, Graduate School, University of Minnesota, Rochester, and Edgar A. Hines, Jr., B.S., M.A., M.D., Professor of Medicine, Mayo Foundation, Graduate School, University of Minnesota, Rochester. With Associates in Mayo Clinic and Mayo Foundation. Second edition. Cloth. $13. Pp. 825, with 316 illustrations. W. B. Saunders Company, 218 W. Washington Sq., Philadelphia 5; W. B. Saunders Company, Ltd., 7 Grape St., Shaftesbury Ave., London, W.C.2, England, 1955.

The three major authors, all with extensive experience in the clinical and experimental aspects of peripheral vascular diseases, have enlisted the assistance of 13 additional contributors for their knowledge in some special facets. The authors wisely emphasize that vascular diseases are generalized in their locations and implications. The historical notes that preface each chapter are recommended reading for pleasure as well as for information. An important section deals with diagnostic studies, after which various disease groups are dealt with in detail. There are many chapters on surgical procedures, including neurosurgical techniques such as sympathectomy, vascular transplants, and other operative approaches. The volume is profusely illustrated. In a volume presenting such a vast number of conclusions, it would be impossible to avoid some controversial statements; however, despite a few points of issue, the product is generally superb. It is a major classic and reference work that should be in every medical library as well as that of all those especially interested in cardiovascular diseases and the other specialties of medicine that demand a knowledge of these diseases.

The Clinical Examination of the Nervous System. By G. H. Monrad-Krohn, M.D., F.R.C.P., Professor of Medicine in University of Oslo, Norway. Tenth edition. Cloth. $7.50. Pp. 428, with 165 illustrations. Paul B. Hoeber, Inc. (medical book department of Harper & Brothers), 49 E. 33rd St., New York 16, 1955.

Since it was first published in 1921, this book has become a standard text in neurological diagnosis. English, French, and German editions have come from the author's clinic in Oslo with great regularity. The last English edition appeared in 1948. Each new edition, better than the preceding, like Holmes' chambered nautilus, moves into a larger but more compact home, filling its new destiny by reflecting the changing environment. The addition of notes on modern technical instruments and methods has not eliminated the sound procedures, based on the sight, touch, and hearing of the examiner, that Monrad-Krohn has championed throughout the years and that still remain fundamental to the neurological examination. This is an ideal book for both student and practitioner. In the new edition, some chapters have been recast and others added, but the sterling character of the book remains the same. It has been a constant companion to neurologists and many students for over 30 years. Although the text of the American edition is the same as that of the English edition, its cost is 48.8% higher. In spite of this, the book should receive a warm welcome from students and physicians of a new generation.

Antibiotics and Antibiotic Therapy: A Clinical Manual. By Allen E. Hussar, M.D., F.A.C.P., Chief of Medical Service, Franklin Delano Roosevelt Veterans Administration Hospital, Montrose, New York, and Howard L. Holley, M.D., F.A.C.P., Associate Professor of Medicine, Medical College of Alabama, Birmingham. Cloth. $6. Pp. 475. The Macmillan Company, 60 Fifth Ave., New York 11, 1954.

In the first part of this book the fundamental principles of antibiotic therapy, such as mode of action, the antimicrobial spectrums, indications for the use of antibiotics, and the toxicity of antibiotics, are adequately reviewed. The major antibiotics are then discussed individually relative to their pharmacological actions, antimicrobial activity, toxicity, methods of administration, and dosage. In the latter two-thirds of the book the treatment of individual infectious processes is outlined. Special sections dealing with pediatric, urologic, ophthalmologic, dental, dermatological, otolaryngological, surgical, obstetric, and gynecologic problems, as they relate to antibiotic therapy, are presented. The manual is all inclusive and up-to-date. At times the authors are a bit forgetful; for example, on page 278, they recommend the use of antibiotics prophylactically in patients who develop asthma during a common cold or in those whose asthma is aggravated by a common cold, while on page 66 they point out correctly that, insofar as penicillin is concerned, "a great proportion of reported fatalities" from anaphylactic reactions "occurred in individuals with bronchial asthma." Also, when the subject of the use of antibiotics in a given infection is controversial, the authors tend toward advising a trial of this or that antibiotic. They may or may not be right in this approach. The manual is well prepared, however, and should be helpful to practitioners of medicine and surgery in their thinking about the prophylaxis and treatment of infectious processes in their patients. Excellent bibliographies are presented.

Early Care of Acute Soft Tissue Injuries. By Committee on Trauma. Boards. $1. Pp. 192. American College of Surgeons, 40 E. Erie St., Chicago 11, 1954.

This publication is a companion manual to "An Outline for the Treatment of Fractures," first published in 1931 by the American College of Surgeons. The authors were selected from the membership of various surgical specialty societies, such as the American Urological Association, the Society for Vascular Surgery, and the American Association for Thoracic Surgery. Few, if any, individual surgeons could cover adequately the material collected in this manual. Injury is assuming a more prominent place in the practice of medicine. It will become more important as mechanical aids to living increase. The fate of the injured patient depends to a large extent on the initial treatment. Although definitive care may not be given, principles of early care are emphasized, where damage can be avoided, with the patient being prepared for definitive care at a later time. Every officer of the armed forces and every intern on entering his internship should be issued a copy of this manual. There are no illustrations or lists of references. The Committee on Trauma of the American College of Surgeons is to be congratulated on a superior manual, which is sorely needed.

Human Physiology. By Bernardo A. Houssay, M.D., Professor of Physiology, Buenos Aires, et al. Translated by Juan T. Lewis, M.D., and Olive T. Lewis. Foreword By Herbert M. Evans, M.D. Second edition. Cloth. $12. Pp. 1177, with 504 illustrations. McGraw-Hill Book Company, Inc., 330 W. 42nd St., New York 36; 95 Farringdon St., London, E.C.4, England, 1955.

This edition of the textbook of physiology for medical students continues along the lines set in the first edition. In the words of its authors, "It must expound ideas taken from several sciences applied to physiology; it must explain the general principles of physiology and the functions of the different organs and systems, as well as their correlations; finally, it must integrate information obtained by the clinical and experimental study of altered function." Furthermore, it should emphasize the constant process of advancement and not be a catalogue of completed statements, and statements should be supported, as far as it is practical, by the actual proof or evidence for them. Finally, although any provincial presentation of physiology would be unthinkable, a slight extra emphasis is intended on the work of Latin America and especially of the authors' group. In general, these objectives are attained and the volume is an effective balance between emphasis on general physiology and on clinical matters, between theoretical understanding and factual detail, and in the actual emphasis given the various organ systems in the total treatment. The literature cited is overwhelmingly in English, with surprisingly few references in French or Spanish, especially considering the authorship; however, al-

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though the volume has been modernized, most of the revision seems to have been completed before 1952, the new references, with a handful of exceptions, being dated 1951 or earlier. The English translation is impeccable, though the writing is on the pedestrian side. The book is well printed and manufactured and easily read, and the illustrations are clear and generally informative and well chosen. It is fortunate that this textbook from South America has won sufficient place for itself in North America to justify this new English edition.

Bone: An Introduction to the Physiology of Skeletal Tissue. By Franklin C. McLean, Ph.D., M.D., and Marshall R. Urist, M.D., Associate Clinical Professor of Surgery (Orthopedics), University of California, Los Angeles. University of Chicago Committee on Publications in Biology and Medicine, Emmet B. Bay et al. The Scientist's Library: Biology and Medicine. Edited by Peter P. H. De Bruyn, M.D. Cloth. $6. Pp. 182, with 27 illustrations. University of Chicago Press, 58th St. and Ellis Ave., Chicago 37, 1955.

Smoothly written and attractively printed, this book summarizes what is known about the structure and function of human bone. In the hands of the authors, what could be a dull subject becomes extremely interesting. After the opening chapters on the cellular anatomy and physiology involved, successive chapters deal with the intercellular structure of organic matrix and inorganic salts; the dynamics of calcification; the enzymes active in deposition and resorption of bone; the influence of systemic and local factors, especially hormones, in bone growth; the metabolism of calcium, phosphate, and citrate in relation to bone; the effects of ionizing radiation; the phenomena of osteogenesis in explants and transplants; the healing of fractures; and the abnormalities caused by disease. The data include some of the most recent results of using radioactive isotopes as tracers, and the illustrations include beautiful examples of electron microscopy and radioautography. There is a bibliography and an index. The book is recommended especially to biochemists, physiologists, and orthopedic surgeons and deserves to become a classic.

Chemical Specificity in Biological Interactions. Edited by Frank R. N. Gurd. Memoirs of University Laboratory of Physical Chemistry Related to Medicine and Public Health, Harvard University, number 3. Cloth. $6. Pp. 234, with illustrations. Academic Press, Inc., 125 E. 23rd St., New York 10, 1954.

This volume is a collection of 10 papers, most of which were given as a series of seminars at Harvard University in February and March, 1952. Much of the material deals with the role that complex formation plays in this chemical specificity. Six chapters, occupying about three-fourths of the book, are used to discuss complexing or binding. The late Edwin J. Cohn discusses the specificity of metal-protein interaction; Scatchard, Hughes, Gurd, and Wilcox consider the interaction of proteins with ions and certain small molecules; Turner deals with protein-steroid bindings, chiefly from the aspect of the chemical and physical properties of the steroids; Schubert discusses the interaction of metals and small molecules and their relationship to protein-metal complexes; Coryell discusses problems in metal complex formation from a physicochemical aspect; and Schwarzenbach considers the specificity of metal complex formation. Four chapters that do not deal with complex formation but are of interest relative to specificity in biological actions are by Warren, on the effect of radiation on protein and living tissues; by W. E. Cohn, on ribonucleic acid structure as determined with the aid of ion exchange chromatography; by Du Vigneaud, on studies on oxytocin and vasopressin; and by Gallagher, on steroid hormones. Each chapter includes a list of references, and the book contains author and subject indexes.

Medical Mycology. Edited by R. D. G. Ph. Simons, Dermatologist in Charge at Civilian Hospital, Amsterdam. Cloth. $9.75. Pp. 446, with 283 illustrations. Elsevier Publishing Company, 402 Lovett Bldg., Houston 6; 155 E. 82nd St., New York 28; 110-112 Spuistraat, Amsterdam C, Netherlands, 1954.

This handbook was written by 36 authors from such countries as the United States, Spain, Egypt, Mexico, France, New Zealand, Kenya, Israel, and the Netherlands. It is not a laborious study of organisms per se but a clinical compendium that would appeal to the general practitioner as well as to the specialist, particularly the dermatologist. The material covers tropical and nontropical fungous diseases, mycologic techniques, and experimental mycology. There are articles by five authors on the different varieties of blastomycosis. The last chapter is a short summary of the cultural characteristics of the pathogenic fungi, together with some of the most often encountered saprophytes. The consideration of treatment of the diseases represents a conservative viewpoint. There is also a special chapter on the principles of therapy. Two of the special features that make the book outstanding are the bibliographies and the editorial comments at the end of each chapter. The photographs are clear and represent the diseases in a reasonably early clinical stage, rather than the usually bizarre and somewhat terminal pictures seen in textbooks on tropical diseases. This group of authors has taken great pains to review a mass of fragmentary and conflicting reports, and they have succeeded in boiling down a large amount of material into a brief and readable book. This book is a definite contribution to the literature on clinical mycology.

Encyclopedia of Chemical Technology. Volume 13: Stilbite to Thermochemistry. Edited by Raymond E. Kirk, Head, Department of Chemistry, Polytechnic Institute of Brooklyn, and Donald F. Othmer, Head, Department of Chemical Engineering, Polytechnic Institute of Brooklyn, Brooklyn, N. Y. Assistant editors: Janet D. Scott and Anthony Standen. Cloth. $30 single copy; $25 subscription price. Pp. 952, with illustrations. Interscience Publishers, Inc., 250 Fifth Ave., New York 1, 1954.

This 13th volume of the proposed 15 volume series covers those topics that alphabetically fall between the technical subjects stilbite and thermochemistry. There are an unusually large number of topics of direct medical interest. One of the opening discussions concerns stimulants and depressants of the nervous system and covers in 44 pages physiological significance, central nervous system stimulants and depressants, adrenergic stimulants and blocking agents, cholinergic stimulants, muscarine blocking agents, ganglionic blocking agents, skeletal neuromuscular blocking agents, and reflex agents and has an extensive bibliography. There are 56 pages on the Streptomyces antibiotics (streptomycin, chloramphenicol, neomycin, erythromycin, carbomycin, and biomycin). Each antibiotic is reviewed with respect to physical and chemical properties, preparation and manufacture, microbiological and pharmacological properties, specifications and assay, indications, and uses. There are brief discussions on the technology of the sulfonamides, surface-active agents, surgical dressings, surgical cultures, sweetening agents, and the three tetracyclines used in medicine. Of less direct medical significance, but of general interest, are discussions on sugars, sulfur and sulfur compounds, tanning materials, tea, terpenes, and textile technology.

Biochemical Investigations in Diagnosis and Treatment. By John D. N. Nabarro, M.D., M.R.C.P., Assistant Physician, Middlesex Hospital, London, England. Cloth. $6. Pp. 299. Little, Brown & Company, 34 Beacon St., Boston 6; H. K. Lewis & Co., Ltd., 136 Gower St., London, W.C.1, England, 1955.

The author has succeeded in his initial attempt to prepare a volume for the use of the clinician that contains modern concepts of biochemistry as they can be applied at the bedside. The recent marked increase in biochemical research has uncovered many new concepts of bodily function that are not available to the practitioner who does not have time to read the technical journals dealing with these subjects. The intent of this book is to remedy this situation. Subjects such as acid-base equilibrium, metabolism of the important inorganic ions, disturbances of metabolism, and endocrine function are discussed accurately in a style that is readable and does not require an extensive knowledge of the subject to be understandable. The coverage is not superficial, however, and necessary detail is included to give the reader a reasonable understanding of mechanisms involved in clinical syndromes. Tables of normal values of useful biochemical determinations on blood, urine, and feces are included. The book does not contain technical details of chemistry and laboratory procedures and does not dwell on controversial points. Definitely not a volume for the biochemist or specialized investigator, it should be well received by the student and practitioner of medicine. A somewhat more extensive bibliography would be desirable for some readers.

QUERIES AND MINOR NOTES

VITAMIN B_{12}

To the Editor:—*What is the current status of vitamin B_{12}? The question has come up whether any effects of overdosage have been demonstrated. There has been a tendency lately to use larger doses (1,000 mcg.) for general tonic value.*

L. I. Younger, M.D., Winona, Minn.

Answer.—Cyanocobalamin (vitamin B_{12}) possesses hemopoietic activity apparently identical with that of the antianemia factor of liver. Studies thus far indicate it is efficacious in the treatment of pernicious anemia with or without neurological complications and also in the treatment of tropical and nontropical sprue and nutritional macrocytic anemia resulting from vitamin B_{12} deficiency. The drug is particularly useful in the treatment of patients who are sensitive to liver extract and is fully as effective as liver extract in patients with spinal cord lesions associated with pernicious anemia. The high potency preparations containing 1,000 mcg. (1 mg.) or more of cyanocobalamin per cubic centimeter have been employed on an experimental basis in various diseases unrelated to the anemias, but the value of such therapy has not yet been adequately established. Claims for "general tonic value" are also unsupported by acceptable evidence. Although daily doses of 1,000 mcg. or more have been administered to numerous patients for periods of several months, there apparently have been no reports of acute or chronic toxic effects from such use.

"SPOT" WEIGHT REDUCTION

To the Editor:—*A 20-year-old girl has a very good figure with the exception of the hips, thighs, and buttocks, where a moderate excess of adipose tissue is deposited. Her measurements are as follows: bust 34 in., waist 23½ in., and hips 39 in. She has three sisters, one of whom has similar measurements. The mother also has large hips. There is no evidence of endocrine imbalance in the family. The patient is very desirous of reducing the measurement of the hips. She has been on reducing diets and is able to keep her weight down to normal for her age and height. Her height is 5 ft. 4 in. (163 cm.); her weight is 121 lb. (55 kg.). Please offer some help on this problem. Are there any special exercises or massage?*

M.D., Washington.

Answer.—The erroneous belief is widespread among lay persons, and enthusiastically promoted by various commercial interests, that weight reduction in the special areas of the body mentioned, sometimes referred to as "spot" reduction, is possible. There is no physiological basis for such an assumption and no clinical evidence that this can ever be accomplished (*J. A. M. A.* **151:**296 [Jan. 24] 1953). Only through continued perseverance in a general weight reduction program can the individual hope to affect the areas mentioned. It is recognized that fat accumulations in such regions are the last to be reduced. Part of the problem is, in many instances, an inherited tendency to have deviations in body structure or to follow a "stocky" pattern that is perhaps present in one or both parents. The patient should be advised against trying out the various mechanical devices advertised widely and without any real justification as "spot" reduction aids. Sometimes, gentle manual massage following a weight reduction program is helpful in restoring elasticity to the sagging skin.

The answers here published have been prepared by competent authorities. They do not, however, represent the opinions of any medical or other organization unless specifically so stated in the reply. Anonymous communications and queries on postal cards cannot be answered. Every letter must contain the writer's name and address, but these will be omitted on request.

PREGNANCY IN OLDER WOMEN

To the Editor:—*A 43-year-old white woman in good health is anxious to have another child. She has two children, ages 6 and 4 years, both apparently normal. Both deliveries were uneventful and easy. Her husband is 52 years old. Is it proved that mongolism or other types of mental retardation are related to advanced maternal age, or is this concept the result of studies dating back 20 years before newer knowledge regarding maternal nutrition, thyroid deficiency, and Rh factors had been developed? Are there any contraindications to pregnancy at this age in a woman with normal pelvic findings and normal basal metabolic rate? Are thromboembolic complications more likely at this age? The patient does not have varicose veins.*

M.D., New York.

Answer.—There is no reason why this healthy woman should not have another child even though she is 43 years old. There are statistics that show that elderly primigravidas, that is, women 35 years old or older, have more complications than younger primigravidas; but there are also statistics that prove that this is not so. Advanced age may play a role in increased complications in pregnancy and labor, because more older women than young ones have hypertension, fibromyomas, varicose veins, and other abnormalities. Also many older gravidas have had numerous children, and it has been shown beyond doubt that women who have had eight or more children are much more endangered by pregnancy and labor than women of lesser parities. However, the patient in question is in good health and has had only two children, hence she may have a third child as safely as a younger woman.

GALLSTONES IN WOMEN

To the Editor:—*If, during pregnancy, a patient shows no lowering of the basal metabolic rate, is there any reason to expect that the administration of thyroid extract by mouth will control the hypercholesterolemia usually associated with this state? Can you suggest any means that might help to control this state? I am assuming it to be one of the main causes of cholelithiasis in female patients.*

D. M. Barringer, M.D., Lincoln, Ill.

Answer.—Although cholelithiasis occurs oftener in women than in men, there is no certain evidence that the physiological changes in gestation predispose to its occurrence. Thyroid function is not implicated in the hypercholesterolemia of pregnancy, and the administration of thyroid should not affect it. It has been theorized that the increased concentration of cholesterol that supposedly predisposes to gallstone formation can be decreased by giving bile salts. The administration of bile salts during pregnancy can do no harm, even though it may not decrease the hazard of gallstones.

CYSTIC ACNE

To the Editor:—*A single woman, 25 years old, has had cystic acne for three years. She has been treated with x-rays and drying lotions on the skin. She has also had the routine diet for acne—limiting the chocolate and carbohydrate intake. The condition persists. The cysts seem to be in the deep layer of skin, and even when drained surgically they fill almost immediately and cause pain and tenderness. Any assistance will be appreciated.*

M.D., Pennsylvania.

Answer.—The judicious use of both broad-spectrum antibiotic drugs and estrogenic substances in addition to the drying lotions should relieve this patient of her discomfort and ultimately control the acne. It is assumed that there is no anemia and that the general health is good.

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